

Maintenance

Aerospace Equipment Maintenance Management

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*, and prescribes procedures governing aircraft maintenance management in the Air National Guard (ANG). It is applicable to both the Maintenance and Operations Groups. It provides a broad management framework for commanders to adjust procedures to compensate for mission, facility, and geographic differences of the unit. Installation commanders, or equivalent, may alter the frequency, agenda, and participation in meetings required by this publication. This instruction is to be used by the ANG in lieu of AFI 21-101 during non-federalized duty periods. When federalized, ANG personnel will use AFI 21-101. Therefore, for the purpose of continuity between these two instructions, chapter and paragraph alignment have been maintained where possible in ANGI 21-101. This results in chapters and paragraphs within ANGI 21-101 being listed as “not used”. ANGI 21-101 prescribes the maintenance organization, policies, and procedures to be used throughout the ANG and is applicable during all technician and military duty periods. Local managers must effectively use their resources to ensure successful mission accomplishment. Managers may use any maintenance management procedure not specifically prohibited by this instruction, other maintenance publications, or technical orders. Innovative management practices are highly encouraged; however, HQ USAF/ILMM with coordination of ANG Logistics Policies and Procedures (ANG/LGMM) will be the final approving authority for all deviations to established maintenance practices. Waivers within the authority of ANG/LGM may be requested via e-mail, message, or letter. At unit level, the Maintenance Group Commander (MXG/CC) or designated representative is responsible for all matters affecting maintenance. This instruction recognizes that command authority is exercised by the State Adjutants General. The National Guard Bureau (NGB) provides policy and management guidance.

SUMMARY OF REVISIONS

Since the 11 May 2001 version, this document has been substantially revised and must be completely reviewed. The Air National Guard, in coordination with Headquarters U. S. Air Force, has rewritten this instruction in its entirety and must be read “cover to cover.”

Since the 01 July 2002 policy memorandum: This document has been changed to reflect the ANG transition to a new Combat Wing Organizational (CWO) structure. In addition to organizational changes, the CWO has driven title and acronym changes of some duty titles and workcenters. Other issues of the restructure have not been defined as of the release of this document and will be addressed in an IMC or revision to this document. Chapters have been renumbered throughout this document to mirror AFI 21-101. Other change highlights are: Chapter (1) 1.4. - Maintenance Concepts, 1.17. – Organization.

Chapter (3) 3.5.5.10. – Supervisory spot checks of post loads, 3.11. – Additional supervision duties.

Chapter (4) - 4.12.3. – Added.

Chapter (5) - 5.4.20.3. Thru 5.4.20.5. Reworded.

Chapter (7) - 7.8.6.6.1. TASO deleted.

Chapter (9) - 9.16. - Contracted Operations added.

Chapter (10) - Mandating the used of QuAD. 10.9.3.1. – Added the optional use of Personnel Evaluations. 10.21. – Added Inflight Operational Checks.

Chapter (13) - Mandated the use of TAS for automated CTK checkout, 13.3.4.7. Reworded options for consumables in CTKs.

Chapter (15) - 15.1.15. Reworded training for PS&D.

Chapter (16) - Deleted B-1, bomber, DLO, and 4 member load crew instructions. 16.14. Reworded. Table 16.2. Added. 16.18. Deleted.

Chapter (18) - Table 18.1. Reorganized to mirror AFI 21-101. 18.7. Deleted Hanger Queen LRU, 18.25. Changed to Aircraft Information Program, 18.28. Added SGO from previous Chapter 17.

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Chapter 1

MANAGEMENT PHILOSOPHY AND POLICY

1.1. Introduction. This instruction prescribes basic aerospace maintenance policy and procedures to be used throughout the ANG, and provides senior leadership and management direction for the accomplishment of the mission. The term aerospace maintenance in this ANGI refers to aircraft and equipment maintenance. For contract maintenance refer to AFI 63-124, *Performance Based Service Contracts (PBSC)*. Local managers are expected to effectively use the resources assigned to ensure successful mission accomplishment. Managers may use additional maintenance management procedures not specifically prohibited by this instruction, technical order (TO) or other applicable maintenance instruction. Innovation is encouraged; however, any conflict with this guidance is prohibited without command review and waiver/variance approval. Units will contact ANG/LGMM for waivers to this publication. This instruction supports the Air Force Core Values and its application to maintenance professionals: ***Integrity - do the job right the first time; Service - mission accomplishment over personal gain; Excellence - put forth the best possible effort all the time.*** HQ USAF/ILM oversees aerospace maintenance at all levels, from the maintainers on the flightline and in the support shops through the technicians in Combat Logistics Support Squadrons (CLSS). The ANG/LGM sets management policy for all maintainers within the ANG.

1.2. Aircraft and Equipment Readiness. Aircraft and equipment readiness is the maintenance mission. The maintenance function ensures that assigned aircraft and equipment are safe, serviceable, and properly configured to meet mission needs. Maintenance actions include, but are not limited to, inspection, repair, overhaul, modification, preservation, refurbishment, testing, and analyzing condition and performance. All levels of supervision must place emphasis on safety, quality, and timeliness in the performance of maintenance. Quality maintenance depends on the integrity and skills of the technician. This concept must be fostered by each supervisor and technician and will not be degraded. Shortcuts or incomplete maintenance actions are prohibited. When possible, maintenance is to be accomplished on a preplanned scheduled basis. This planning provides the most effective and efficient use of people, facilities, and equipment, reduces unscheduled maintenance, and allows for progressive actions toward maintaining and returning aircraft and equipment to safe operating condition. Conducting a bench check of components and proper control of repair cycle assets throughout the maintenance cycle are also critical elements of the equipment maintenance program. This applies during all military and technician duty periods.

1.2.1. Preventive Versus Corrective. The purpose of the entire maintenance process is to sustain a capability to support the flying and training missions. To accomplish this objective, the primary focus of the effort should be on preventive-- rather than corrective--maintenance. Preventive (or scheduled) maintenance ensures that equipment is ready and available at the time of need. On the other hand, corrective (or unscheduled) maintenance is generated during the process of using equipment.

1.2.2. On-Equipment and Off-Equipment. There are two basic types of maintenance performed at unit level: on-equipment and off-equipment. On-equipment is work performed on an aircraft or piece of support equipment. Off-equipment work is typically performed in a repair shop on components removed during on-equipment maintenance. Either type of work can be scheduled or unscheduled. Components removed from equipment for in-shop repair are said to be in the

repair cycle. Like preventive maintenance, effective repair cycle management is critical to sustaining maintenance capability. Attention must be paid to eliminate bottlenecks by ensuring that adequate parts, equipment, and training is available and minimize repair cycle time.

1.3. Maintenance Discipline. Maintenance discipline involves integrity in all aspects of the maintenance process. It is the responsibility of all maintenance personnel to comply with all written guidance to ensure that all required repairs, inspections, and documentation are completed in a safe, timely, and effective manner. Supervisors are responsible for establishing a climate that promotes maintenance discipline. Personnel who fail to maintain maintenance discipline standards will be held accountable.

1.4. Maintenance Concept. The ANG requires varying degrees of maintenance capability at different locations. This capability is described (in order of increasing capability) as either organizational, intermediate, or depot.

1.4.1. Organizational - First level of maintenance performed on-equipment (directly on aerospace vehicles or support equipment at flightline level. Generally minor repairs, inspection, testing, or calibration.

1.4.2. Intermediate - Second level of maintenance performed off-equipment (to removed component parts or equipment) at backshop level, primarily testing and repair or replacement of component parts.

1.4.3. Depot - Third level of maintenance performed on- or off-equipment at a major repair facility. Highest level of maintenance for more complex repairs.

1.4.4. Two-level maintenance (2LM) - maintenance approach using two of the three levels of maintenance to support weapons systems. The 2LM approach modifies or eliminates the intermediate (off-equipment) function where possible, consolidating that repair function at the depot or "regional" level.

1.4.5. Three-level maintenance (3LM) - maintenance approach employs all three levels of maintenance. Historical USAF maintenance approach with accompanying procedures and organizational structure.

1.4.6. Degree of maintenance capability depends upon mission requirements, economics of repair, transportation limitations, component reliability, workload agreements, facility requirements, frequency of tasks, and special training required.

1.4.7. Base-level aircraft maintenance activities must have the capability to launch and recover aircraft and sustain the preventive maintenance program. Generally, this means most units must possess a full complement of equipment and supplies to perform on-equipment and off-equipment maintenance. Aircraft repair sources may include: (a) in-house (organic) from operational or support commands, (b) other military services, and (c) commercial organizations under contract.

1.5. Preventive Maintenance. ANG aircraft require regular maintenance and repair to ensure their optimum availability for mission tasking. Each aircraft is designed with a maintenance concept tailored to its operational mission. Built into that concept are specific inspection and servicing requirements, which form the basis of a preventive maintenance program. All ANG units must implement and manage the tasks specified in the scheduled program for their assigned aircraft and associated support equipment (SE). By following that program, aircraft systems and

components will operate with greater reliability over time ensuring aircraft availability. A conscientious and disciplined approach to preventive maintenance will be the method used to meet that goal safely and effectively. Preventive maintenance concepts are described in T.O. 00-20-1, *Aerospace Equipment Maintenance General Policy and Procedures*.

1.6. Use of Technical Orders (T.O.) and Supplements. Use of the prescribed technical data to maintain aerospace equipment is mandatory. Units will contact ANG/LGMM for unresolved technical order issues.

1.6.1. Supervisors will:

1.6.1.1. Strictly enforce adherence to and compliance with TOs and supplements.

1.6.1.2. Establish and manage T.O. and supplement programs according to T.O. 00-5-1, *Air Force Technical Order System*, T.O. 00-5-2, *Technical Order Distribution System*, and AFI 33-360, Volume 1, *Publications Management Program*.

1.6.1.3. Establish procedures for shipping T.O.s and supplements to support mobility requirements.

1.6.1.4. Ensure availability of required T.O.s and supplements in workcenters.

1.6.2. All Personnel will:

1.6.2.1. Recommend improvements or corrections for T.O. deficiencies IAW T.O. 00-5-1. Personal e-mail and faxes are not acceptable methods of updating or revising technical orders. The AFTO Form 22 prescribed in Chapter 5 of T.O. 00-5-1 may be submitted as an attachment to an e-mail to report problems of a T.O., however, paragraph 5-1.3 stipulates that "Replies T.O. recommended changes are for information only. Official T.O. updates are the only valid authority for correcting a technical deficiency and implementing change."

1.6.2.2. Continually assess the currency, adequacy, availability, and condition of their T.O.s and supplements.

1.6.3. ANG will ensure that any new or modified configurations or maintenance conditions are coordinated with and approved by the Single Manager responsible for the operational safety, suitability, and effectiveness (OSS&E) of the systems and end-items prior to implementation.

1.7. Publications. ANG aerospace maintenance is defined by this instruction. Units must tailor procedures to the unique aspects of their own maintenance operation and publish directives (instructions, supplements, and for functional areas operating instructions according to AFI 33-360, Volume 1) for areas where more detailed guidance or specific procedures will ensure a smooth and efficient operation. Adhere to the following procedures:

1.7.1. Do not publish unit instructions or Operating Instructions (OI) to change or supplement T.O.s. Use the authorized procedures in T.O. 00-5-1.

1.7.2. For directives that apply to both the Operations and Maintenance groups, the organization controlling the majority of functional areas covered in the instruction publishes it.

1.7.3. Coordinate directives with all appropriate unit agencies.

1.7.4. Conflicts between administrative and technical publications will be resolved in favor of the technical publication.

1.7.5. Conflicts between procedural technical publications and weapon system specific technical

publications will be resolved in favor of the weapon system specific technical publication.

1.7.6. Conflicts between Air National Guard/Air Force Reserve and Air Force administrative publications are resolved IAW AFI 33-360, Volume 1

1.8. Most Efficient Organization (MEO)/Contract Aircraft Maintenance. This section identifies the basic responsibilities for managing MEO or contract maintenance. Additional guidance may be found in AFI 63-124, *Performance-Based Service Contracts (PBSC)*.

1.8.1. Contractors have historically provided significant support to the Armed Forces of the U.S. Contractor support can augment existing capabilities, provide expanded sources of supplies and services, bridge gaps in the deployed force structure, leverage assets, and reduce dependence on U.S.-based logistics.

1.8.2. The war fighter's link to the contractor is through the contracting officer or the contracting officer's representative.

1.8.3. HQ USAF/ILM Responsibilities:

1.8.3.1. Establish and approve policies and procedures for direction and management of contract aircraft maintenance.

1.8.3.2. Air Force logistics focal point for all inter-service and inter-agency matters pertaining to contract aircraft maintenance.

1.8.3.3. Ensures requirements for measurement, documentation, and reporting of contract aircraft maintenance performance exist.

1.8.3.4. Ensures policies and procedures contain provisions for continuation of required operation and services in the event of disruption, termination, or default of contract aircraft maintenance.

1.8.4. ANG Responsibilities:

1.8.4.1. Designates focal points for organizational, functional, and technical questions pertaining to each contract aircraft maintenance program.

1.8.4.2. Specifies measurement areas and standards of performance required for aircraft, systems, and equipment supported by contract maintenance.

1.8.4.3. Specifies the forms, methods of documentation, and frequency of reporting used to assess contract maintenance and ensures the requirements are included in the statement of work.

1.8.4.4. Approves base-level requests that would permit a single Federal Aviation Administration (FAA) certified Airplane/Powerplant (A/P) contractor technician maintaining contracted logistics support (CLS) aircraft to repair and sign off their own red X's when sent to recover aircraft off-station.

1.8.4.5. Identifies the qualifications, training requirements and responsibilities for Quality Assurance personnel for each contract aircraft maintenance program.

1.8.4.6. Ensures units with assigned Quality Assurance (QA) personnel meet requirements of AFI 63-124 and other applicable guidance.

1.8.5. Unit Responsibilities:

1.8.5.1. Designates a focal point for all functional, technical, and Quality Assurance matters

pertaining to contract aircraft maintenance.

1.8.5.2. Ensures that a focal point is identified as the MXG / OG Environmental Coordinator for all Environmental, Safety, and Occupational Health requirements, compliance, and, as appropriate, worker protection issues for MEO and contract organizations. This MXG / OG Environmental Coordinator focal point will lead the installation Candidate Process analysis program as identified in AFPD 90-8/AFI 32-7080/7086 and assist installation tenants and other organizations as required.

1.8.5.3. In coordination with the contracting officer and the MXG/CC provide specific guidance to the MEO/contract maintenance to ensure proper maintenance discipline and flight worthiness of aircraft and subsystems.

1.8.5.4. Develops contingency procedures for support of continuing operations in the event of disruption, termination, or default of contract aircraft maintenance.

1.9. Modification Management. A modification proposal is a recommendation to change the operation, use or appearance of ANG equipment. Forward the modification proposal on an AF Form 1067, **Modification Proposal**, or approved Research, Development, Test & Evaluation (RDT&E) process form, according to AFI 63-1101, *Modification Management*, and AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*, to the ANG/LGM focal point. QA submits modification proposals, tracks unit concerns being worked by higher headquarters, and ensures proper implementation of modification directives and/or TCTOs.

1.9.1. Temporary Modifications. Temporary modifications change the configuration of a system for flight or ground test purposes or support the accomplishment of a specific mission. There are two subsets of temporary modifications as identified and defined as follows:

1.9.1.1. Temporary - 1 (T-1). T-1 modifications temporarily change, add, or remove equipment to provide increased capability for a special mission. T-1 modifications are normally made by the using command for operational reasons, and are not used as substitutes for permanent modifications. T-1 modifications will not be maintained on the system for more than one year without a waiver from the single manager (SM). To install T1 modifications on more than five systems requires coordination through ANG/LGM, owning single manager, and ALC/CC, then HQ USAF/ILM approval. Systems will be returned to their original configuration upon removal of the modification. Systems must be capable of being returned to their original configuration within 48 hours. See AFI 63-1101, for additional guidance on modifications.

1.9.1.2. Temporary - 2 (T-2). T-2 modifications are temporary modifications required to support research, development, test, and evaluation (RDT&E), in service testing of potential replacement items, and for aircraft/stores compatibility testing. T-2 modifications will normally be accomplished only on programs having approved program management directives (PMD). No more than five systems may be modified on a temporary basis without SM approval. T2 modifications will not be maintained on the system for longer than the approved test program requires. Systems will be returned to their original configuration upon completion of the test. They are done to:

1.9.1.2.1. A selected set of operational or test systems to evaluate a proposed permanent modification.

1.9.1.2.1.1. Test an approved acquisition program (e.g., modification of chase aircraft, modification to aerial targets where targets support various tests and are attrited in the test,

installation of instrumentation into the system, etc.), or test support equipment.

1.9.1.2.1.2. Test in an operational environment to evaluate Operational, Safety, Suitability, and Effectiveness (OSS&E) including reliability and maintainability of a form, fit, and function potential replacement item (AFI 63-1201, *Assurance of Operational Safety, Suitability, and Effectiveness*).

1.9.1.2.1.3. Evaluate the aircraft/stores capability of an existing or new store on an existing aircraft.

1.9.1.3. Permanent (P). These modifications make permanent changes to correct safety or materiel deficiencies, improve reliability and maintainability, or to add or remove capability.

1.9.1.3.1. Permanent - Safety (P-S). Safety modifications are permanent modifications that correct materiel or other deficiencies (per T.O. 00-35D-54, *USAF Deficiency Reporting and Investigating System*) that could endanger the safety of personnel or cause loss or extensive damage to systems or equipment.

1.9.2. For all temporary and permanent modifications, the system and end item Operational Safety, Suitability, & Effectiveness (OSS&E) shall be preserved in accordance with the following directive and instruction: AFPD 63-12, *Assurance of Operational Safety, Suitability & Effectiveness* and AFI 63-1201 *Assurance of OSS&E*. OSS&E is integral to the modification management process and as such shall be preserved throughout modification planning and execution to ensure operational safety, design integrity and suitability for all modified systems and end items. The weapon system SM is responsible for maintaining system engineering integrity; the lead command is responsible for fleet-wide interoperability and commonality of that system. Therefore, all proposed permanent and temporary modifications must be approved by both the SM and lead command and reviewed by the lead command Configuration Review Board (CRB) prior to being implemented.

1.9.3. All permanent modifications will be managed as acquisition programs.

1.9.3.1. All permanent modifications to systems will include the appropriate modifications to the associated support equipment, computer resources, and system training devices and to the spares supporting those systems or equipment items.

1.9.3.2. When more than one SM (including commodity SMs) are involved, the program management directive (PMD) will identify the responsibilities for development and installation. Normally, the SM of the actual mission design series (MDS) being modified will be designated as the integration lead.

1.9.3.2.1. The involved SMs, using command(s), and the supporting depot(s) will develop an agreed-to implementation approach and schedule. The approach and schedule establishes all the needed dates and actions.

1.9.4. Modifications to Federal Aviation Administration (FAA) certified aircraft. Modifications to Air Force aircraft having FAA certification shall not cause the aircraft to lose its FAA certification. All modifications to such aircraft shall comply with AFPD 62-4, *Civil Airworthiness Standards for Passenger Carrying Commercial Derivative Transport Aircraft* and AFPD 62-5, *Standards of Airworthiness for Commercial Derivative Hybrid Aircraft*. Such modifications are required to keep the weapon system or aircraft in compliance with FAA standards and to maintain FAA certification.

1.9.5. Modifications to Munitions. All proposed modifications to aircraft-carried munitions shall include SEEK EAGLE certification (per AFI 63-104, *The SEEK EAGLE Program*). All modifications to Air Force nuclear munitions or their associated support/training equipment shall be nuclear certified (per AFI 91-103, *Air Force Nuclear Safety Certification Program*). All modifications to Air Force non-nuclear munitions or their associated support/training equipment shall be certified (per AFI 91-205, *Non-Nuclear Munitions Safety Board*).

1.9.6. Using Command Initiated Temporary Modifications. Using commands will initiate T-1 and T-2 modifications using an AF Form 1067, **Modification Proposal**. The proposed modification must be approved by the using command Configuration Review Board (CRB) and then forwarded to the SM for engineering approval. The using command may install the modification only after SM engineering approval is received. The using command will establish internal procedures for documenting and managing the modification. For configuration control and management, a complete copy of the modification documentation will be maintained in the historical records of the system(s) modified. The using command is responsible for all budgeting and funding of using command initiated T-1/T-2 modifications.

1.9.7. Lead Command Initiated Temporary Modifications. The same procedures as using commands applies to lead commands for T-1 and T-2 modifications. However, both the lead command and the single manager must first approve any implementation of permanent modifications for which there was no previously validated need. (The lead command is the command that serves as operator's interface with the Single Manager for a weapon system as defined by AFPD 10-9).

1.9.8. SM Initiated Temporary Modifications (T-2 Modifications only). When the SM has engineering responsibility for the item being modified, the SM shall establish internal procedures for documenting and managing the modification. For configuration control and management, a complete copy of the modification documentation will be maintained in the historical records of the system(s). When an SM needs to modify a system managed by another SM, the requesting SM will send an AF Form 1067 to the SM with engineering authority for approval. The requesting SM is responsible for funding all T-2 modifications they initiate.

1.9.9. Initiation of Permanent Modifications. The appropriate procedures for initiating a permanent modification depends on the estimated cost of the effort (AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*). Initiation of permanent modification begins with a submittal of an AF Form 1067. Time Compliance Technical Orders (TCTOs) shall be used to document all permanent modifications (T.O. 00-5-15). Generally, TCTOs are required only after the Air Force assumes configuration control of a system or commodity. Engineering Change Proposals (ECPs) control modifications prior to this point. Prior to implementation, all modifications must be approved by the SM and reviewed by the SM's CRB prior to being implemented.

1.9.10. CRB actions on modification proposals will be documented on AF Form 3525, **CRB Modification Requirements and Approval Document** or equivalent. This form is produced electronically by the Modifications Management System, D087L. The D087L system is available for use by all modification managers in AFMC, and the data is available Air Force wide. Configuration information will be processed and reported in the Generic Configuration Status Accounting Subsystem (GCSAS). The GCSAS is a single unified information source for all Air Force military system configuration status accounting. GCSAS is a subsystem of the

Reliability and Maintainability Information System (REMIS) and will provide cradle-to-grave tracking of serially controlled configuration items.

1.9.11. **Safety Modifications.** Safety modifications shall take priority over all other modifications for funding and implementation. For each safety modification, the SM will conduct a risk assessment. All safety modifications will be accomplished in the minimum amount of time required to ensure a safe and operationally effective fix. The goal for accomplishing engineering, test, production, and complete installation of the modification on the fleet of systems/equipment is 18 months. **NOTE:** A modification must meet the following criteria to qualify as a safety modification: the deficiency that the modification is to correct must have caused or could cause loss of, or serious injury to, personnel or loss of, or extensive damage to, systems/equipment. To be designated as a safety modification, a request for safety modification designation must be forwarded from the SM for approval by the Commander of the lead command and the Director of Air Force Safety. If the deficiency does not cause the fleet to be grounded, the approving Commander must provide rationale for the safety designation.

1.10. Relationships. Ensures the organizational relationship, physical location, and lines of communication between the Functional Director/Commander, Quality Assurance (QA) personnel, contracting officer, and the contractor performing contract aircraft maintenance, promote efficiency and continuity of operations. If maintenance requires depot level assistance for evaluation and/or repair beyond unit capability, the request will be made IAW T.O. 00-25-107, *Maintenance Assistance*, and T.O. 00-20-14, *AF Metrology and Calibration Program*.

1.11. Support Agreements. Maintenance organizations may be tasked to support functions that are not related to the primary unit mission. Intra-service, inter-service, inter-command, and international support agreements outline the degree of support provided and the responsibilities of the supported function. The agreements must be developed and reviewed in terms of possible impact on the primary unit mission and all other existing agreements and fully coordinated with the Logistics Readiness Squadron plans function. Units will contact ANG/LGMM for unresolved support agreement issues.

1.12. Operating Instructions. Wing instructions pertaining to maintenance are published as OIs. When crossing group lines, OIs must be coordinated and approved by the affected commanders and published as wing OIs. OIs are not published to change AF instructions, policy or T.O.s. OIs will be published when expanded guidance encompasses other group responsibilities, for example: Maintenance Group (MXG), Operations Group (OG), Civil Engineer (CE), Security Forces (SF), etc. Quality Assurance (QA) will be the Office of Primary Responsibility (OPR) for maintenance policy guidance and consolidation.

1.12.1. Quality Assurance will coordinate the review of the OI with the Office of Coordinating Responsibility (OCR) to ensure the instructions are technically accurate, complete and consistent with AF and ANG policy. OIs will be reviewed annually.

1.12.2. The appropriate safety function reviews any OI that affects munitions operations or safety; including all locally developed checklists, instructions, supplements, plans, or operating procedures relating to nuclear surety (AFI 91-101, *Air Force Nuclear Weapons Surety Program*).

1.13. Communications and Transportation. Effective maintenance requires efficient communications and transportation. Radios must be available to expedite personnel, equipment, materiel, and logistics data throughout the maintenance complex. A communication system will

be selected with the capability to effectively support the maintenance communication requirements, including mobility and host base interoperability IAW AFI 33-202, *Computer Security*. The radio will be frequency-programmable. Unit commanders develop communication plans according to mission requirements. Non-licensed wireless devices may be approved for use by the designated approving authority (DAA) to support logistics and transportation needs. Non-licensed devices are afforded no protection from interference. If interference is caused to an authorized service, the non-licensed device must cease operation.

1.14. Maintenance Information Systems (MIS): MIS refers to the automated maintenance information systems including Core Automated Maintenance System (CAMS), Reliability and Maintainability Information System (REMIS), Comprehensive Engine Management System (CEMS), and G081 (CAMS for Mobility). MIS provides maintenance supervision at all levels with products to evaluate the organizational effectiveness and to aid in the decision making process. AF/ILM has central authority for policy and guidance covering all MIS IAW applicable Air Force 33-series publications. According to the AF/IL Information Systems Strategic Architecture Plan, two of the AF/IL's strategic goals are to provide integrated, trusted data and to eliminate or consolidate information systems. In support of these goals, AF/ILM is focusing MIS modernization efforts towards eventually fielding a single, integrated MIS. To facilitate this drive to a single system, ANG/LGM and AF/ILM must have control over the proliferation of unit or ANG unique MIS. If a unit desires to use a system other than the authorized standard MIS, whether commercial off-the-shelf (COTS), government off-the-shelf (GOTS) or locally generated, the unit must submit a request for permission to ANG/LGMM. After consideration, ANG/LGMM must forward any requests they support for implementation to AF/ILMM Information Systems Branch for final consideration/approval.

1.15. Functional Management. At wing-level, the Maintenance Group commander is the functional manager for all maintenance personnel. As the functional manager, the Maintenance Group commander:

1.15.1. Oversees the career progression of maintenance officers and senior noncommissioned officers (SNCOs) by allocating and assigning maintenance officers and SNCOs to those positions within the wing requiring a maintenance Air Force Specialty Code (AFSC).

1.15.2. Coordinates on all wing policies affecting maintenance operations.

1.16. Waiver Request. ANG is not permitted to deviate from this instruction without receiving written approval from HQ USAF/ILM. Units must submit waiver requests through the ANG/LGMM.

1.17. Organization. Air Force wings will organize according to AFI 38-101 or as authorized by HQ USAF/XPM. Contractor and civil service maintenance functions are not required to organize IAW AFI 38-101, but will implement the organization as outlined in their proposal and accepted by the government. **The ANG is transitioning to a new Combat Wing Organizational (CWO) structure resulting in the following title and acronym changes: Logistics Group (LG) will become Maintenance Group (MXG), Logistics Group Commander (LG/CC or LG) will become Maintenance Group Commander (MXG/CC), Logistics Support Flight (LSF) will become Maintenance Operations Flight (MOF), Aircraft/Helicopter Generation Squadron (AGS or HGS) will become Aircraft/Helicopter Maintenance Squadron (AMXS or HMXS), Component Repair Flight (CRF) will become Component Maintenance Flight (CMF), and Sortie Generation Flight (SGF) will become**

Aircraft Maintenance Flight (AMF). For the purpose of this instruction, in units where there is not an Operations Group Commander or Maintenance Group Commander responsible for maintenance, the applicable group commander or director of maintenance (DOM) will be the maintenance authority (MA), as depicted by the wing's organizational structure, and will ensure compliance with all responsibilities in this instruction. See figures 1.1 and 1.2.

1.17.1. ANG maintenance activities are organized by the various organizational structure codes on the manning document for that particular weapon or support system. Workcenters are staffed consistent with mission requirements, workload, and available personnel. Units are encouraged to consolidate functions when warranted to streamline operations and enhance mission readiness. During non-federalized operations, ANG units are not manned or structured to adopt all gaining command maintenance management policies and procedures. When the gaining command utilizes a different maintenance management program, the unit MXG/CC ensures management personnel are aware of that program to permit the unit to be incorporated into the gaining command management structure upon federalization.

1.18. Maintenance Standardization. The objectives of standardization are to ensure greater interoperability, improve maintenance quality and ensure maintenance effectiveness. Group commanders are accountable to the wing commander for ensuring standardization of maintenance discipline, quality, organizational structure, and philosophy.

1.18.1. Supervision at all levels will use metrics provided by Maintenance Data Systems Analysis (MDSA) to evaluate the overall health of the fleet and the ability to meet sortie production goals. They will take necessary actions to avoid or reverse negative trends.

1.19. Maintenance Training. Maintenance training provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary Air Force Specialty Code (AFSC). The overall capability of a unit depends on the state of training for aircrew members and maintenance personnel. Training is essential to improving and sustaining unit capability and is one of the most important responsibilities of commanders and supervisors. Providing training in combat and sortie generation skills not normally integrated into peacetime operations (e.g., munitions and external fuel tank build-up, sortie generation operations procedures, hot refueling, etc.) is particularly critical and requires special management attention. Commanders and supervisors must give priority support to training. When balancing resources, (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), Maintenance training carries an equal priority with the operational training mission. Maintenance training is established according to AFI 36-2201, *Developing, Managing, and Conducting Training*, and AFI 36-2232, *Maintenance Training*, and ANG training instructions.

1.19.1. The CUT program provides the work force internal flexibility by training individuals to perform tasks that are not in their primary AFSC. This training offsets periods of austere or low skill level manning and enhances combat capability by developing a broad base of skills to draw upon. Dependency upon peacetime, low work hour skills to perform cross-utilization tasks may create a sortie production capability shortfall when supporting combat operations. CUT skills should never be a long-term fix for an AFSC shortfall, as this could impact combat capability. Important considerations for units include:

1.19.1.1. Identifying the type of tasks for CUT and determining which individuals receive that training.

1.19.1.2. Providing CUT so that personnel can work with little or no assistance.

1.19.1.3. Ensuring CUT does not interfere with skill level upgrade training or weapons system qualification training.

1.19.1.4. Approval to CUT 3 levels will be approved thru ANG/LGMM.

1.20. Maintenance Repair Priorities. Maintenance repair priorities are based on Table 1.1.

Table 1.1. Maintenance Repair Priority Designators .

PRIORITY	APPLICATION
1	Aircraft on alert status, war plan or national emergency missions, including related Aerospace Ground Equipment (AGE), munitions, and munitions support equipment (MSE).
2	Primary mission aircraft, related AGE, munitions, and munitions support equipment, for the first 8 work hours after landing or start of recovery or within 6 work hours of a scheduled launch, alert or test flight and during simulated generation/ORI. Air evacuation, rescue, weather mission aircraft, related AGE, munitions, and munitions support equipment. All transient support, and FAA aircraft. Flight or missile crew training simulator, other training equipment or related AGE required repair, which is impacting the mission by preventing or delaying student training.
3	Primary mission aircraft, engines, air launched missiles and related AGE, munitions, munitions equipment, and equipment undergoing scheduled or unscheduled maintenance, if not performed or repaired will prevent or delay mission accomplishment. Transient air vehicles not otherwise listed. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews. Time change requirements for nuclear weapons. Spares not available in supply. Critical end items and reparable spares or supply designated "priority repair" spares. Routine maintenance of aircrew or missile-training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training. Avionics shop electronic AGE and automated test stations.
4	Routine or extensive repair of primary mission aircraft, related Support Equipment (SE). Repair cycle assets to satisfy a MICAP condition. Administrative aircraft undergoing scheduled or unscheduled maintenance. Routine maintenance of AGE not otherwise listed above. WRM items due maintenance or inspection. Inspection, maintenance, and TCTO compliance of MSK or MRSP material. Scheduled calibration and unscheduled repairs on PME not listed above. Extensive repair of aircrew or missile training simulator, or other training devices or related AGE.

5	Non-tactical or non-primary mission aircraft undergoing extensive repair. Repair cycle asset shortages required to fill a readiness spares packages (RSP) authorizations. Fabrication and repair of aeronautical items not carrying a higher priority. Time change requirements on non-nuclear items.
6	Fabrication and repair of non-aeronautical items. Repair cycle asset shortages required to fill a peacetime operating stock authorization
7	Spares/repair cycle assets excess to base requirements.
<p>NOTES:</p> <ol style="list-style-type: none"> 1. This table is intended as a guide in establishing maintenance repair priorities. It does not prohibit the production supervisor, in coordination with the MOC, from changing the maintenance repair priority when warranted. (Raising or lowering maintenance repair priorities does not necessarily require a corresponding change in the supply delivery priority). Factors warranting such actions include but are not limited to: <ol style="list-style-type: none"> a. Raising the priority <ol style="list-style-type: none"> (1) Expedite repair of an aircraft that is delaying scheduled maintenance (ISO, Phase, etc.) flow time. (2) When known maintenance actions exceed the pre-launch time of 6 hours. b. Lowering the priority <ol style="list-style-type: none"> (1) Aircraft on the flying schedule that require excessive maintenance and cannot meet subsequent scheduled sorties. (2) Following its last sortie of the day, the aircraft is scheduled for phase, periodic, TCTO, or extensive maintenance. 2. During SIOP or operational exercise, the preplanned maintenance flow determines job sequence. 3. The maintenance repair priority and supply delivery priorities are normally identical. However, the production supervisor may authorize the use of a less responsive supply delivery priority. 	

1.21. Duty Shifts and Rest Periods. During normal operations, maintenance personnel will be scheduled for duty based on a 40-hour workweek. For airlift, helicopter, and tanker units with extended flying periods, maintenance personnel will have their duty hours aligned to give the best mission support.

1.21.1. Supervision will be equitably distributed to cover all duty periods.

1.21.2. The following guidance establishes maximum duty periods and minimum rest periods for all personnel assigned to a maintenance activity. Group Commanders (GP/CC) may waive the following provisions during emergencies and advanced defense readiness conditions.

1.21.3. Duty time begins when personnel report for duty and ends when their supervisor releases them. A rest period is a block of time that gives a person the opportunity for at least 8 hours of uninterrupted sleep in a 24-hour period.

1.21.4. Do not schedule personnel for more than 12 hours of continuous duty time. Provide a rest period after each shift. Time spent in exercise/contingency deployment processing lines and

in-transit counts toward the total duty day, and may impact time available to perform maintenance at the destination. This policy includes maintenance recovery teams. Group commanders are final approval authority for exceeding 12-hour limit up to a maximum of 16 hours.

1.21.5. Duty periods for crew chiefs and maintenance technicians traveling with their units' aircraft are normally controlled by the aircraft commander. The aircraft commander will:

1.21.5.1. Allow maintenance technicians the opportunity for a minimum of 8 consecutive hours of uninterrupted sleep in a 24-hour period.

1.21.5.2. If ground time warrants, develop a work and rest plan (not to exceed more than 12-hour work and rest cycle). The work and rest cycle should be adjusted to give maintenance personnel an adequate rest period prior to the departure of the aircraft if at all possible.

1.21.6. Personnel who work a maintenance shift and are assigned non-maintenance duty, such as charge of quarters, may exceed the 12-hour duty period provided rest is permitted while performing the non-maintenance duties.

1.21.7. Personnel who handle conventional munitions and egress explosives are limited to a 12-hour continuous duty period followed by a normal rest period. This rest period may not be waived for exercises or inspections.

1.21.8. In alert force or standby duty situations where facilities are available for resting, established norms may be exceeded. Adjust rest periods to allow for at least 8 hours of sleep when people on alert or standby are required to work.

1.21.9. Ensure individuals are afforded adequate rest periods and breaks. Stop anyone if fatigue may jeopardize safety. In all cases, aircraft commanders/supervisors ensure aircraft maintenance personnel are not required to perform duty when they have reached the point of physical or mental fatigue rendering them incapable of performing their assigned duties safely and reliably.

1.22. Air Force Munitions Policy. Air Force Munitions Policy is contained in AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*. ANG/LGMW will develop and provide policy and guidance on use of War Reserve Materiel (WRM) Missiles/Precision Guided Munitions (PGM), other limited or restricted use munitions and management of cumulative service life sensitive munitions (i.e., CBU-87/89). This will ensure WRM munitions remain available and in reliable condition and at the same time provide a realistic training environment and support for exercise purposes.

1.22.1. Live and inert/CATM missiles (or electrical simulators) of the same type **will not be** loaded or flown together on an aircraft for any purpose. Any deviation or waiver to this policy will be requested by official message to the ANG/LGMW. The ANG/LGMW is the sole approval authority for these deviations/waivers. AFMC deviations/waivers must be submitted to AFMC/DRR-LGW.

1.22.2. A configuration of live and inert (to include training and practice) bombs **will not be** loaded in/on the same dispenser, rack or flown on an aircraft load together. Any deviation or request for waiver to this policy will be requested by official message and coordinated and approved by ANG Munitions Division, ANG Weapons Safety, and ANG Operations Weapons and Tactics/Training Division.

1.22.3. Captive Air Training Munitions (CATM): Safety pins/streamers for arming keys/safe-

arm handles on CATMs may be removed for daily training/flying operations provided positive control and accountability is maintained for these items. If additional components (wings, fins, rollerons, etc.) are authorized to be removed they must also be an authorized flight configuration (Seek Eagle) listed in the applicable -1 flight manual. These components are only removed for foreign or dropped object prevention. Any CATM missiles used for exercises, Sortie Generation Operations (SGO), Load Crew Training, or inspections will be configured to the maximum extent possible with all safety devices and components to mirror the parent tactical munitions.

1.22.4. Command Missile Policy. To maintain our War Reserve Material (WRM) missile reliability and availability, the following applies (except AGM-69/86/129):

1.22.4.1. In addition to the Air Force Munitions Policy requirements, the Command Missile Policy applies to all versions of Tactical Air Missiles (i.e. AIM-7, AIM-9, AGMs, AGM-142 (HAVE NAP), AIM-120 (AMRAAM), AGM-84 (HARPOON). Containerized/not containerized missiles are not used for peacetime loads, SGOs, exercises, or inspections.

1.22.4.2. The total number of ready missiles (Category C) for these units may be one Standard Conventional Load (SCL) per Primary Authorized Aircraft (PAA). Units with continuous active alert commitments (includes home station and detachments) may add one standard missile load for each primary alert aircraft to their total. Missiles stored at detachments are placed in dead/All-Up-Round-Container (AURC) storage (Category A).

1.22.4.3. Tactical missiles may be flown for OPlan tasking, Noble Eagle (other CONR taskings), air defense alert, Weapons System Evaluation Programs (WSEP), and Operational Test and Evaluation (OT&E) Programs.

1.22.4.3.1. Live missiles of one type and inert versions (or electronic simulators) of others may be loaded on aircraft participating at WSEP/Combat Archer, as applicable.

1.22.4.4. Load crew training missiles will mirror the parent tactical missile.

1.22.4.5. Missiles will not be electronically verified during or after IG, ORI, or local exercises/CTOs on the field test set solely to determine missile reliability/serviceability.

1.22.4.6. A dedicated e-mail address will be established for units utilizing the TMRS program IAW applicable Technical Orders.

1.22.4.7. TAC Ferrying of Alert AUR missiles:

1.22.4.7.1. For TAC ferry flights of a full AUR AIM-9 the umbilical connector must be connected. The GCS requires power to the seeker head to keep it stabilized due to the internal gyros even if other parts of the missile are identified as unserviceable

1.22.4.7.2. For TAC ferry flight of AIM-7. The AIM-7 umbilical secured and shorted to prevent power to the missile.

1.22.4.7.3. Units requesting to TAC Ferry missile will contact ANG/LGMW with missile serial numbers and the date of event.

1.22.4.7.4. Aircraft transporting live missiles will not engage in Air-to-Air or Air-to-Ground training.

1.22.4.7.5. Partial configurations have not been approved by SEEK EAGLE for F-16 and F-15 units. Units flying CATM-120 will have wings and fins attached.

1.22.4.7.6. Deicing fluid, fuel, hydraulic fluid, etc. is not inherently damaging to the missile, however, these fluids should not be sprayed directly on the missiles, especially avoiding the wing holes, aft end, and harness cover. If the missile is contaminated with any of these fluids the missile should be cleaned IAW the appropriate TO. Missiles do not need to be downloaded prior to deicing.

1.23. Two Level Maintenance. Refer to AFI 21-129, *Two Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment*, for detailed procedures.

1.24. Individual Mobilization Augmentees (IMA). The Air Force Reserve Command (AFRC) provides aircraft maintenance units with manpower augmentation through IMA authorizations. Refer to AFI 36-2115, *Assignments within the Reserve Components*, AFI 36-2619, *Military Personnel Appropriation Man-Day Program*, AFI 36-2629, *Individual Mobilization Augmentee Management*, AFI 36-3209, *Separation and Retirement Procedures for Air National Guard and Air Force Reserve Members*, and AFMAN 36-8001, *Reserve Personnel Participation and Training Procedures*.

1.25. Reliability and Maintainability (R&M). At the core of Air Force R&M efforts are technical working groups (e.g. PIWG, MDS maintainers conferences, Component Improvement Program). Forward inputs IAW AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*. Assessing unit R&M concerns is twofold. First, review all reported R&M deficiencies and determines those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Analysis and Logistics Readiness Squadron (LRS) provide the majority of this information.

1.26. Civilian Visitors. Units may not permit civilian visitors to operate any item of military equipment when such operation could cause, or reasonably be perceived as causing an increased safety risk.

1.26.1. Civilian visitors include:

1.26.1.1. ANG family members who are not employed by the ANG or assigned to a military service.

1.26.1.2. All civilians who are visiting another unit/installation and are not performing their normally assigned duties.

1.26.1.3. Retired DoD employees.

1.26.2. Civilian employees, contractor employees, and other civilian personnel who must operate ANG equipment as part of their assigned duties are not considered civilian visitors.

1.26.3. This policy is effective regardless of how closely military personnel supervise the civilian visitors. In addition, civilian visitors will not operate any ANG equipment, specialized vehicles, and any other equipment that requires training to operate, unless they have been specifically trained in the operation of such equipment.

1.26.4. This policy is not intended to preclude ANG units from hosting civilian visitors and affording them the opportunity to see their ANG at work.

1.27. Unit Committed Munitions List (UCML), Test/Training Munitions List (TTML). Operational units will use UCML's, Test/Training units will use TTML's unless they require a

UCML (i.e. NORAD Committed). The UCML/TTML is a list of primary munitions (PM), support munitions (SM), and limited-use munitions (LM) necessary to meet unit operational/test/training requirements. The list of PM cannot include more than 10 individual munitions or munitions family groups (MFG) combined per mission, design, and series (MDS) aircraft assigned. The UCML/TTML also specifies the authorized number of fully certified load crews as determined by the LCOM and the minimum required to be formed and certified. ANG/LGM may supplement UCML/TTML processing, coordination and appendix requirements.

1.27.1. As a minimum, UCML/TTML's will be updated annually to identify all munitions tasked and/or required to support test/training or OPlans and Designed Operational Capability (DOC) statements. Additional munitions may be included on the UCML/TTML as SM or LM munitions if required by the unit or designated by ANG/LGM to support test, training, or deployment. The UCML/TTML is the base document for aircrew and load crew training munitions forecasts, authorizations and operations.

1.27.2. Unit changes to the UCML/TTML will be justified by Wing Weapons and Tactics, coordinated and processed through the Wing Weapons Manager, Munitions Element, OG/CC and MXG/CC before sending it to ANG/LGM.

1.27.3. Standard Conventional Load (SCL) lists are not part of the UCML/TTML. They are stand-alone documents.

1.27.4. Total Authorized Load Crews (Fighter units) are derived using the approved Logistics Composite Model (LCOM) published for each MDS. The number of load crews depicted on the UCML/TTML is derived by subtracting the numbers of supervisors (ratio of one per eleven authorizations) from the total number of 2W1X1 loading manpower authorizations per squadron (from the LCOM) and dividing by the standard load crew size.

1.28. NGB Technical Support, Single Point Of Contact (SPOC), and Advisory Committees/Teams. When established, the purpose of the SPOC, advisory committee/team is to augment and advise ANG/LGM staff personnel and is also responsible to the respective weapon system or Logistics council. A committee/team must be sanctioned by the ANG in order for it to be recognized. The need to form a team or SPOC will be initiated by ANG/LGM or by the various weapon system councils. Appointment to the team will be by recommendation through the individuals MXG/CC to the weapons system council president for approval and to the respective ANG functional OPR for appointment. Team/SPOC members may be removed by recommendations from the respective weapon system council to the ANG/LGM OPR for approval. Notification of the team/SPOC members to the field will be by message or e-mail. Duties of the team/SPOC include, but are not limited to:

1.28.1. Act as the functional expert for specific aircraft maintenance related issues.

1.28.2. Coordinate with all other agencies/units as required to establish a consensus on issues.

1.28.3. Provide technical guidance on specific areas of expertise.

1.28.4. Provide technical assistance to the ANG and respective weapon system council for policy creation.

1.28.5. Execute specific technical tasks as assigned IAW existing ANG policy.

1.28.6. Attend meetings pertaining to assigned subjects.

1.28.7. Maintain close communications with ANG functional OPR.

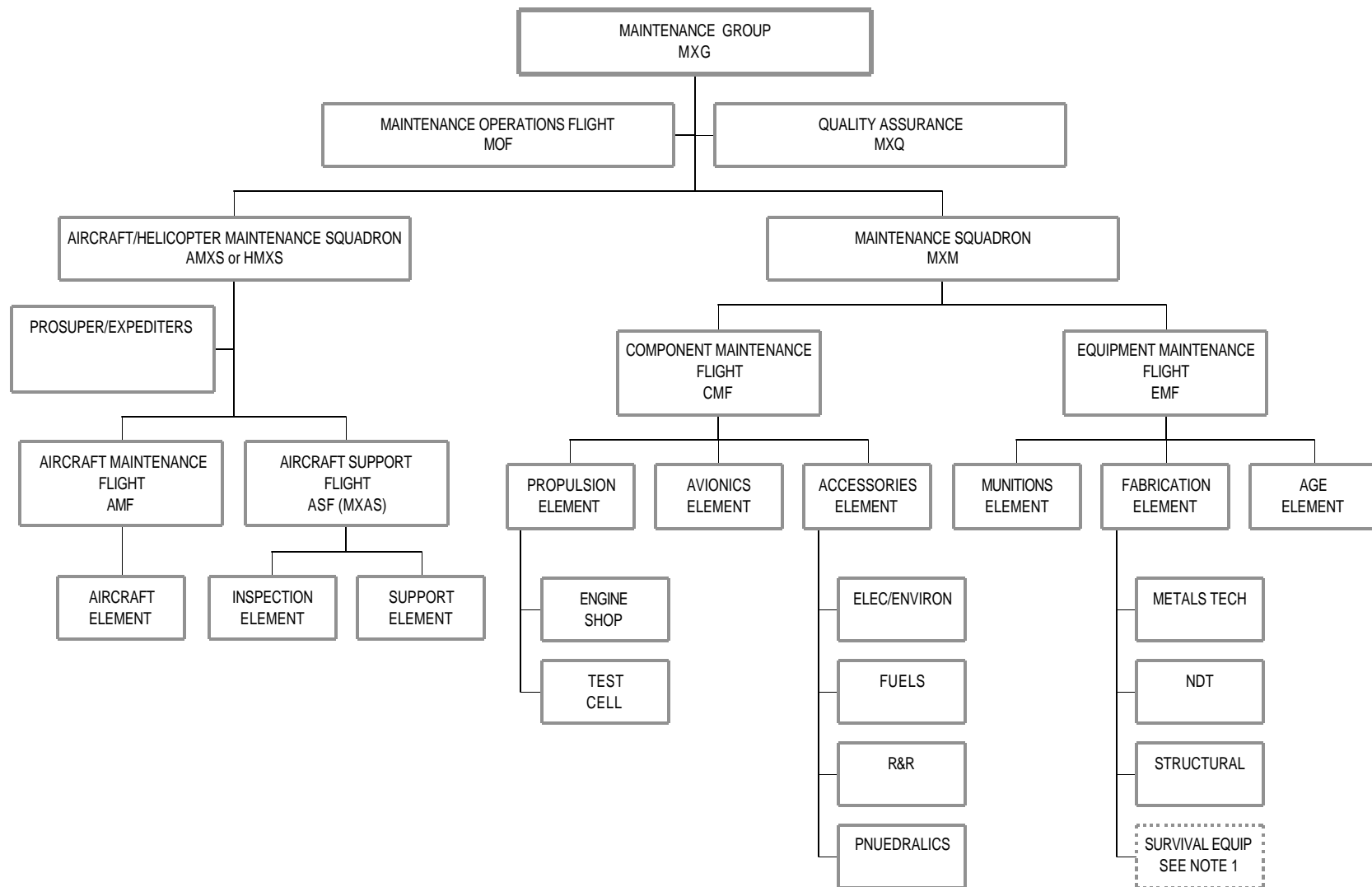
1.28.8. Provide trip reports, point papers, background papers, and general information when required.

1.28.9. Provide updates to units.

1.28.10. Generate informational/tasking message, as required, after coordination with ANG functional OPR.

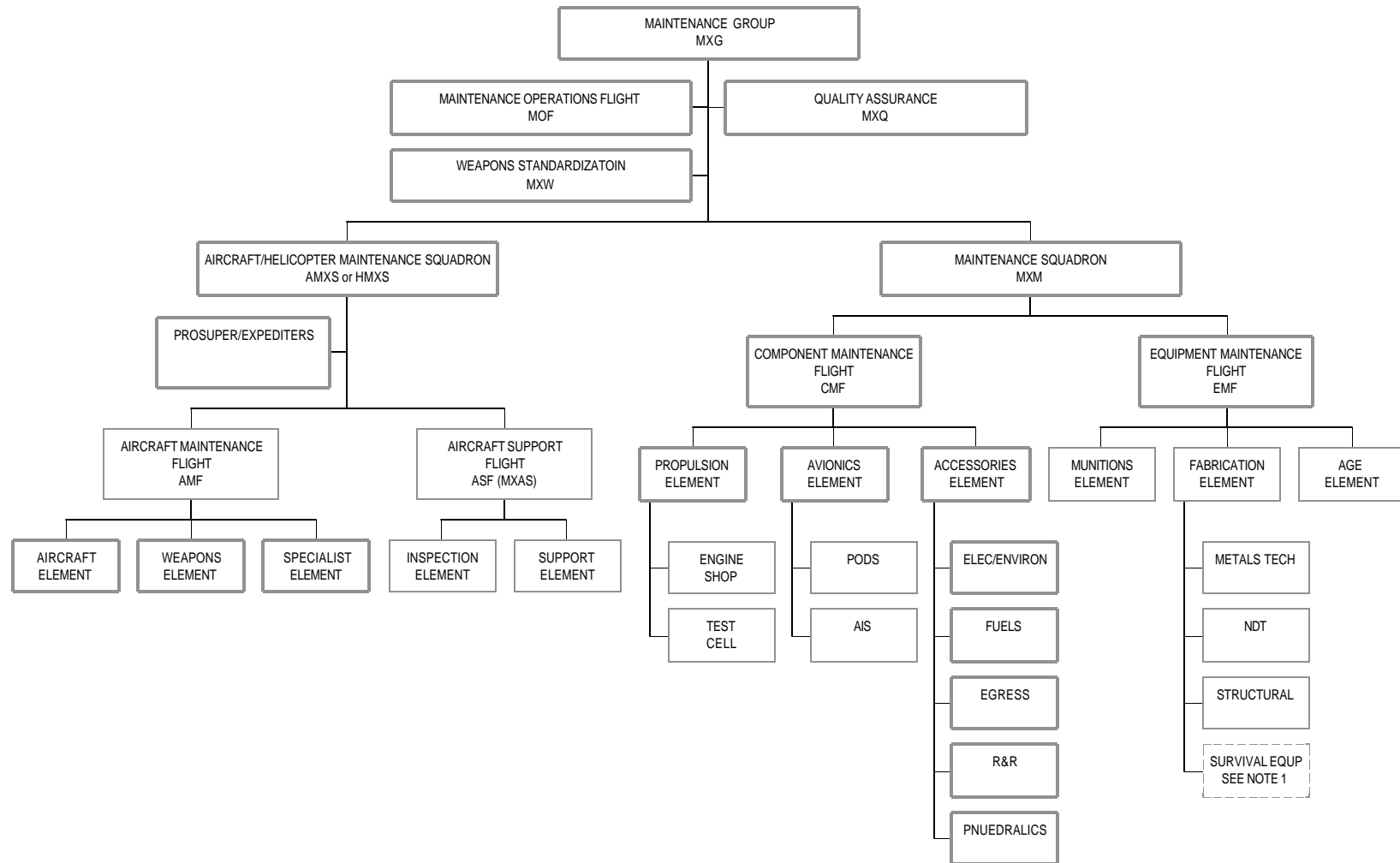
1.28.11. SPOCs will not set policy.

Figure 1.1. Heavy Aircraft Maintenance Group Organization (Typical but not all inclusive.)



NOTE : Survival Equipment on the UMD works for the MXG and on the SPMD the Survival Equipment works for the OG.

Figure 1.2. Fighter Aircraft Maintenance Group Organization (Typical but not all inclusive.)



NOTE : Survival Equipment on the UMD works for the MXG and on the SPMD the Survival Equipment works for the OG.

Chapter 2

GENERAL RESPONSIBILITIES FOR COMMANDERS AND KEY LEADERS

2.1. General. This chapter outlines specific maintenance responsibilities. Due to diversity of maintenance structures, responsibilities are assigned at the appropriate level as applicable. The levels are in descending order and represent levels of assignment.

2.2. Wing Commander Responsibilities. The WG/CC allocates maintenance resources to meet mission requirements. The WG/CC should ensure the maintenance organization is not overly tasked with base detail augmentation. Where maintenance resources are not available, reductions in mission requirements may be necessary. Commander organizes maintenance according to AFI 38-101. The relationship between maintenance capability and the successful accomplishment of the mission needs to be clearly understood. The wing commander:

2.2.1. Sets up a close working relationship with both Maintenance Group (MXG) and Operations Group (OG) commanders to ensure an understanding of the requirements and capabilities of maintenance actions. Ensures the MXG/CC and OG/CC are communicating and cooperating to enhance the wing's maintenance and sortie generation capability, and career development for maintenance AFSCs within the wing.

2.2.2. Ensures combined MXG/CC and OG/CC participation in all organizational planning, programming, and budgeting actions. MXG/CC and OG/CC involvement in unit deployment/employment planning is critical to the development of the unit's combat capability and requires close coordination with the plans, scheduling, and documentation (PS&D).

2.2.3. Establishes a balance between the OG requirement for sorties and MXG maintenance capability. Establishes a joint MXG and OG planning and scheduling cycle to ensure the best use of aircraft, equipment, and personnel to accomplish short-term sortie production and long-term fleet health.

2.2.4. Establishes a maintenance operations center (MOC).

2.2.5. Supports quarterly Quality Assurance and monthly scheduling meetings ensuring that maintenance issues are addressed.

2.2.6. Establishes a crash damaged or disabled aircraft recovery (CDDAR) capability. Publishes an OI containing specific responsibilities for all applicable base agencies.

2.2.7. Will ensure effective management of the Foreign Object Damage (FOD) Program and the Dropped Object Prevention (DOP) program.

2.2.8. Oversee and ensure that maintenance and operations develop a joint annual maintenance and flying program. Ensure maintenance capability is considered in the development of the flying/test program. Continuous review ensures a long-term balance between maintenance capability and operational requirements.

2.3. Maintenance Group Commander (MXG/CC) Responsibilities. Maintenance Group commanders (or equivalents) are responsible for aerospace equipment maintenance required to ensure balance between sortie production and fleet management.

2.3.1. The MXG/CC will:

2.3.1.1. Ensure standardization of maintenance discipline, procedures, organizational structures, compliance, and management philosophy.

2.3.1.2. Ensure that maintenance training throughout the respective group is accomplished according to the published (monthly) training plan and the awaiting and overdue backlogs are kept to a minimum. The MXG/CC exercises oversight authority for all maintenance training.

2.3.1.3. Determine Agile Combat Support (ACS) requirements, utilizing the smallest Unit Type Codes (UTCs) to meet capability, tailoring them as required; identify deploying personnel (and alternates) by name; and take any necessary actions to acquire additional support or equipment as required prior to deployment. The MXG/CC provides readiness status to the OG/CC of personnel and equipment available to support ACS requirements. The OG/CC is responsible for reporting readiness of sortie generation and supporting UTCs.

2.3.1.4. Delegate the necessary authority for support and production activities to perform assigned tasks.

2.3.1.5. Rotate personnel, as necessary, to enhance mission and develop individual experience and knowledge.

2.3.1.6. Control assignment of respective group facilities. Submit the necessary documents for new construction and modifications.

2.3.1.7. Establish a vehicle control program for their group.

2.3.1.8. Provide for management of the financial program.

2.3.1.9. Promote unit self-sufficiency through the use of maintenance resources according to T.O. 00-25-195.

2.3.1.10. Establish a QA program.

2.3.1.11. Promote unit repair enhancement through the effective use of maintenance resources according to AFI 21-123, *The Air Force Repair Enhancement Program (AFREP)*, T.O. 00-25-195, *Air Force Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons Systems, and Equipment*, and T.O. 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*.

2.3.1.12. Develop an impoundment program according to Chapter 11.

2.3.1.13. Ensure procedures to properly turn in recoverable and consumable items are followed according to AFMAN 23-110, *USAF Supply Manual*.

2.3.1.14. Establish a means to review repeat/recurring, and cannot duplicate (CND) discrepancies or problem aircraft and systems, and perform periodic reviews to identify and direct resolution of trends.

2.3.1.15. Ensure that repair cost evaluations are performed and appropriate levels of review and repair authorization are established in squadrons, flights, and repair sections IAW T.O.s 00-20-3, 00-25-240, *Uniformed Repair/Replacement Criteria for USAF Support Equipment (SE)*, and 35-1-25, *Economic Repair Criteria for Support Equipment (SE)*.

2.3.1.16. Ensure a records management program is established according to AFI 37-138, *Records Disposition-Procedures and Responsibilities*, AFMAN 37-123, *Management of Records*, and AFMAN 37-139, *Records Disposition Schedule*.

- 2.3.1.17. Ensure a compliance-structured self-inspection program is established IAW Chapter 18. This program is not required for contract organizations unless specified in the Statement of Work (SOW).
- 2.3.1.18. Ensure, when applicable, strict adherence to command war reserve materiel (WRM) missile and precision-guided munitions (PGM) control policy IAW AFI 21-201.
- 2.3.1.19. Ensure that all personnel assigned to maintenance are used to accomplish critical wartime tasks, tank build-up, and munitions build-up before releasing them for non-maintenance duties.
- 2.3.1.20. Establish and ensure a strong and positive, routine interface between MDSA and QA.
- 2.3.1.21. Ensure effective use of the Air Force Engineering and Technical Services/Contracting Engineering Team Specialists (AFETS/CETS) according to AFI 21-110, *Engineering and Technical Services, Management and Control*.
- 2.3.1.22. Establish local OIs for management and maintenance of assigned ground training aircraft to ensure they remain useful and safe within guidelines stated in AFI 84-103, *Museum System*, and AFMAN 23-110, *USAF Supply Manual*.
- 2.3.1.23. Ensure an oil analysis program (OAP) is established IAW ANGI 21-105, *Corrosion Control, Nondestructive inspection, and Oil Analysis Programs*.
- 2.3.1.24. Ensures the group's UTC requirements are reviewed and annually briefed to senior maintenance supervision, to include all senior NCOs.
- 2.3.1.25. Provide aircraft, personnel, and equipment to support the maintenance-training program.
- 2.3.1.26. Quarterly review maintenance limiting factors (LIMFACS), shortfalls, and simulation requests.
- 2.3.1.27. Approve depot-level assistance requests (T.O. 00-25-107) after they are coordinated with PS&D, QA, all applicable maintenance organizations, and the ANG functional manager.
- 2.3.1.28. Review the wing's proposed annual maintenance and flying hour/test programs prior to submission to the ANG.
- 2.3.1.29. Coordinate with the base fire department, safety, and airfield operations in developing adverse weather OIs for protecting aircraft and equipment (AFOSH STD 91-100, *Aircraft Flight Line-Ground Operations and Activities*, AFI 10-229, *Responding to Severe Weather Events*, and specific assigned aircraft T.O.s). MXG/CC's are responsible for their respective aircraft and associated equipment, but may be required to coordinate the use of facilities and equipment to ensure their protection.
- 2.3.1.30. Institutionalize Operational Risk Management (ORM) within the workplace. Identify, eliminate or control, and document hazards to minimize risk associated with uncertainty in the decision-making process. Additional guidance can be found in AFI 90-901, *Operational Risk Management Program*.
- 2.3.1.31. Ensure compliance with all applicable Air Force Occupational Safety and Health (AFOSH) standards.
- 2.3.1.32. Establish minimum levels for essential maintenance assets to include aircraft, engines,

Pods, AGE, vehicles, etc.

2.3.1.33. Ensure a nuclear surety program is viable and implemented in nuclear tasked units.

2.3.1.34. Ensure squadrons comply with provisions in AFI 10-201, *Status of Resources and Training Systems*. The MXG/CC will coordinate with the OG/CC as required to ensure accurate, timely reporting of readiness capability.

2.3.1.35. Ensure organizational compliance with all Federal, State and local laws pertaining to environmental regulations and pollution prevention.

2.3.1.36. Ensure aircraft maintenance data is accurate by establishing and supporting a data integrity team (DIT). This team is not required in contract organizations unless specified in the SOW. Ensure members assigned to the DIT are suitably qualified and provided sufficient time to accurately assess the data. Ensure each aircraft maintenance workcenter performs a review of all documentation entered into G081/CAMS daily IAW T.O. 00-20-2, *Maintenance Data Documentation*.

2.3.1.37. Provide oversight of, and coordinate on, all initiatives to change published maintenance instructions, mission directives, etc.

2.3.1.38. Ensure fire extinguisher, hazard communication (HAZCOM), and appropriate ancillary training programs are established for MXG personnel performing on-/off-equipment maintenance duties.

2.3.1.39. Ensure Squadron/Flight commanders and supervisors at all levels are responsible for the Vehicle Management Program, ensuring compliance with the provisions of AFI 24-301, *Vehicle Operations*, and AFPAM 24-317, *Vehicle Control*.

2.3.1.40. Determine who conducts and tracks the orientation training for all personnel newly assigned to all unit maintenance/activities. As a minimum, topics must include unit mission, Aerospace Expeditionary Forces (AEF) vulnerability, tasking plans, supply procedures, foreign object damage (FOD) program, general flightline and workcenter safety rules, QAP, product improvement procedures, environmental issues, block training, and corrosion control.

2.3.1.41. Approve user identified test measurement and diagnostic equipment (TMDE) "priority" listing.

2.3.1.42. Ensure training requests identified on AF Form 898, **Field Training Requirements Scheduling Document**, are coordinated and approved.

2.3.1.43. Ensure the publication library or publication sets, including technical orders are established.

2.3.1.44. Designate a focal point for all functional, technical, and Quality Assurance matters pertaining to contract aircraft maintenance (as required).

2.3.1.45. Establish tool issue and control OIs that include FOD prevention, security, control, and accountability IAW Chapter 13. Also provide tool inventory procedures, methods of tool identification, and lost or missing tool procedures.

2.3.1.46. Ensure that a focal point is identified as the MXG Environmental Coordinator for all installation weapon system Environmental, Safety, and Occupational Health requirements, compliance, and worker protection issues. This MXG Environmental Coordinator will lead the

installation Candidate Process analysis program as identified in AFD 90-8/AFI 32-7080/7086 and assist installation tenants and other organizations as required.

2.3.1.47. Develop a 10-year facility plan specifying maintenance, upgrade, and replacement projections for the group's facilities. MXG/CCs will update and coordinate this plan with the Civil Engineer annually. Monthly, MXG/CCs will coordinate and prioritize group maintenance facility work orders.

2.3.1.48. Ensure the protection and security of aircraft, equipment and facilities.

2.3.1.49. Monitor the assignment and use of all maintenance personnel to ensure equitable distribution of skilled people. Ensure all personnel assigned to Maintenance are used to accomplish critical wartime tasks before releasing them for non-maintenance duties.

2.3.1.50. Act as the approval authority for "all systems" Red X and/or In-Process Inspection (IPI) certifications.

2.3.1.51. Sign the Special Certification Roster (SCR).

2.3.1.52. Assign a manager for the engine-run, qualification/certification program IAW AFI 11-218, *Aircraft Operation and Movement on the Ground*.

2.3.1.53. Appoint, when required, a Wing Weapons Manager (WWM). The MXG/CC appoints a WWM, who is the most qualified 2W1XX and is the functional manager for AFSC 2W1X1. In cases where the function is not represented by full time personnel, the MXG/CC will appoint a full time representative.

2.3.1.54. Ensure that no maintenance is performed by personnel who are not properly trained and certified, unless under the direct supervision of a trainer or certifier.

2.3.1.55. Ensure that anyone performing maintenance utilizes an AF Form 623 and Career Field Education and Training Plan (CFETP) or automated training products to provide a record of qualification, regardless of military rank or civilian grade.

2.3.1.56. Ensure that QA has access to JEDMICS, and a primary and that an alternate POC has been assigned and identified to the ANG Program Manager for coordination in accordance with ANGI 21-407.

2.3.1.57. Ensure an OI has been established for controlling, security, distribution, and destruction of engineering data in all media forms.

2.3.1.58. May authorize the use of non-2W1X1 personnel as load crewmembers but not load crew chiefs.

2.3.1.59. Establish an OI to ensure coordination occurs between unit/squadron debriefing sections and the maintenance operations center (MOC) for each sortie or abort.

2.3.1.60. Develop a maintenance group (MXG) OI for Red Ball maintenance to include parts delivery, maintenance procedures, documentation methods, and follow-on actions IAW Chapter 18 of this instruction.

2.3.1.61. Ensure compliance with the impoundment procedures IAW Chapter 11 of this instruction.

2.3.1.62. Ensure effective management of weight and balance (W&B) program IAW Chapter 10 of this instruction.

2.3.1.63. Ensure effective management of the wing's Engine Trending and Diagnostic (ET&D) program.

2.3.1.64. Ensure operations squadrons not possessing 2W1X1 personnel establish a chaff/flare training program. As a minimum, the program will include academic, explosive safety, and load/unload training. The program will be administered using the following guidance; as a minimum, the academic program will include:

2.3.1.64.1. Applicable T.O.s and publications.

2.3.1.64.2. Applicable safety discipline/practices.

2.3.1.64.3. Security requirements.

2.3.1.64.4. Aircraft familiarization.

2.3.1.64.5. Stray voltage checks (as required).

2.3.1.64.6. Munitions characteristics.

2.3.1.64.7. Local requirements.

2.3.1.65. The MXG/CC will ensure oversight is provided for microcomputer systems management for the maintenance complex. The MXG/CC may assign the following tasks as an additional duty:

2.3.1.65.1. Control and validation of microcomputer equipment requests submitted for microcomputer equipment through the automated system.

2.3.1.65.2. Functional Server Administrator (FSA) for the Local Area Network (LAN).

2.3.1.65.3. Computer Systems Manager (CSM).

2.3.1.65.4. Custodian for Automated Data Processing Equipment (ADPE).

2.3.1.66. Enable use of the: Enterprise Data Warehouse EDW: <https://edw.day.disa.mil/C4RDonline>: <https://web2.ssg.gunter.af.mil/ilm/c4rd/current.asp>

2.3.1.67. Review and approve, coordinating with the OG/CC, the weekly, monthly, quarterly, and annual flying/test schedules.

2.3.1.68. Establish an OI for reconciling training munitions issued for flightline requirements (AFI 36-2217, *Munitions Requirements for Aircrew Training*).

2.3.1.69. Establish effective sortie generation operations procedures IAW Chapter 18.28. if applicable.

2.3.1.70. Ensure effective Aircraft Structural Integrity Program (ASIP) is established IAW AFI 63-1001, *Aircraft Structural Integrity Program*.

2.3.1.71. Establish effective Functional Check Flight (FCF), Operational Check Flight (OCF), and High Speed Taxi Check programs.

2.3.1.72. Ensure that plans, scheduling, and documentation (PS&D) responsibilities outlined in Chapter 15 are accomplished.

2.3.1.73. Ensure the maintenance capability is considered in development of the flying program.

2.3.1.74. Establish the capability to perform aircraft cross servicing (ACS), when tasked IAW

Chapter 18.

2.3.1.75. Ensure that maintenance requirements [e.g. aircraft turnaround, alternate fuel cell, hot refueling, end-of-runway (EOR) check area, engine run spots, explosive load (cargo) areas] are included in the base parking plan.

2.3.1.76. Establish procedures for maintenance OI program management and administration. The MXG/CC oversees the development and publication of all maintenance-related OIs.

2.3.1.77. Control the duty assignment of newly assigned maintenance officers and superintendents. The MXG/CC ensures career development and training of maintenance officers IAW AFI 36-2611, *Officer Professional Development*.

2.3.1.78. Manage the hangar queen program, if applicable.

2.3.1.79. Establish crash damaged or disabled aircraft recovery (CDDAR) capability in accordance with applicable mission design series technical data. Ensures resources and trained personnel are available to perform responsibilities of CDDAR.

2.3.1.80. Function as the wing OPR for the Intermediate Repair Enhancement Program (IREP).

2.3.1.81. Establish an OI on individual responsibilities and specific procedures for cannibalization (CANN) actions (Chapter 18). Aircraft in depot maintenance (possessed by AFMC) will not be cannibalized without approval from the applicable air logistics center (ALC) system manager and in coordination with the ANG/LGM functional manager.

2.3.1.82. Manage the wing's maintenance training program to include course development content, ancillary, qualification, and maintenance training activities. Publishes monthly training schedules outlining specific aircraft course and equipment requirements. The MXG/CC has overall responsibility for the training of maintenance personnel. Ensures training requests identified on AF Forms 898, **Field Training Requirements Scheduling Document**, are coordinated and approved.

2.3.1.83. Approve the monthly maintenance and training plans. **EXCEPTION:** For munitions maintenance schedules and plans, when authorized by the MXG/CC, the munitions element OIC/supervisor chairs the munitions scheduling and training meetings and publishes schedules.

2.3.1.84. Exercise overall responsibility for ensuring standardized inspection and maintenance procedures in the wing. Outlines procedures in maintenance operating instructions (OI).

2.3.1.85. Establish the wing logistics awards and recognition program to meet Air Force and ANG requirements (AFI 36-2818 *USAF Logistics Awards Program*).

2.3.1.86. Establish local manufacture OI for procedures and controls.

2.3.1.87. Ensure that the unit has implemented an effective Corrosion Prevention and Control Program IAW ANGI 21-105.

2.3.1.87.1. Publish an OI outlining local policies and procedures.

2.3.1.87.2. Designate a SNCO with appropriate technical background and corrosion control experience to serve as the unit corrosion prevention and control manager.

2.3.1.88. Establish a RAMP inspection program IAW Chapter 18 if tasked.

2.3.1.89. Engine Lead the Fleet (Pacer) Program (if applicable). Lead the Fleet Program is used to determine actual distress modes of an engine in the field. The Lead the Fleet Program provides early intelligence on engine integrity, reliability, and maintainability before a majority of the fleet is impacted. The program is also designed to prove engineering data and procurement lead-time for orderly updating and modification of the engine, as well as for the engine controls and accessories.

2.3.1.89.1 Manage the wing engine Lead the Fleet (Pacer) Program established for that engine type IAW the following documents: MOUs, MOAs, Propulsion Center of Excellence Best Practice 01-14, https://www.asc.wpafb.af.mil/asc/lp/pcoe/best_practices.htm, and AFI 21-104, *Selective Management of Selected Gas Turbine Engines*.

2.3.1.90. Ensures an effective Aircraft Information Program (AIP) IAW paragraph 18.25. Appoints an officer or NCO as the AIP project officer, and ensures effective measures are in place to capture data.

2.4. Squadron/Flight Commander Responsibilities. The commander is responsible to the MXG/CC and may be assisted by one or more individuals for overall squadron/flight management. They play a pivotal role in the unit's effort to improve maintenance quality. They must ensure supervisors and personnel participate in reviewing maintenance processes. Without aggressive involvement from maintenance supervision, the unit quality assessment program will not be effective. The Squadron/Flight Commander:

2.4.1. Ensures strict adherence to technical data and all other written management procedures.

2.4.2. Implements and manages self-inspection, retention and career motivation, security, mobility, and personnel reliability programs, as applicable.

2.4.3. Administers the squadron safety program. Coordinates with the squadron safety monitor to ensure all personnel obtain the required safety training. Ensure safety information is available and personnel in hazardous areas know of safety implications.

2.4.4. Ensures facilities meet Air Force industrial environmental standards IAW AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, and reports deficiencies to base bioenvironmental.

2.4.5. Ensures the unit is capable of deploying in response to wing taskings. Works with Maintenance Plans and unit supervisors to prepare for execution of plans. Initiates squadron deployment planning and provides inputs to plans.

2.4.5.1. Designates an officer or NCO to act as a focal point for deployments (mobility). This person will be referred to as the Unit Deployment Manager (UDM). The MXG/CC may combine these duties.

2.4.5.2. When evaluating taskings, the UDM considers other plans that task the unit, personnel/equipment requirements, and LIMFACs. Performs unit duties and responsibilities in AFI 10-403, *Deployment Planning*, Chapter 4, Deployment Execution Equipment Preparation Requirements and Chapter 5, Personnel Preparation and Deployment Execution Requirements.

2.4.6. Ensures personnel authorized and assigned are adequate to support the unit mission and tasking plans. Coordinates with wing manpower office representatives for assistance in preparing requests to ANG for UMD adjustments.

2.4.7. Ensures the group commander is notified of any critical shortages of personnel, aircraft, equipment, or components that might affect the unit's ability to generate aircraft sorties.

2.4.7.1. Monitors additional duties, leave, training requirements, and details taking manpower from the work force.

2.4.7.2. Monitors all personnel working outside of their primary AFSC (out of hide) to ensure that it does not hamper mission accomplishment.

2.4.8. Enforces sound maintenance, supply discipline, and financial management practices.

2.4.9. Ensures compliance with Office of Personnel Management and Air Force policy directives.

2.4.10. Reviews Single Integrated Operational Plan (SIOP), Emergency War Order (EWO), applicable Designed Operational Capability (DOC) statements, mobility, contingency, and exercise plans and ensures squadron processes are established to meet tasked requirements.

2.4.11. Monitors new requirements for training, equipment authorizations, special tools, workspace, facilities, and manning for impact on unit's capability to perform its mission.

2.4.12. Complies with the group vehicle program as required by AFI 24-301, *Vehicle Operations*, and designates a squadron vehicle control officer/NCO.

2.4.13. Reviews status of training programs monthly. Ensures upgrade training and maintenance qualification programs emphasize quality and are not primarily focused on meeting minimum upgrade time frames.

2.4.14. Ensures functional publication libraries are established and maintained according to AFI 37-160, Volume 7, *Air Force Publications and Forms Management Programs-Publication Library* and AFI 33-322, *Records Management Program*.

2.4.15. Ensures compliance with unit Environmental Protection Agency (EPA) program according to AFI 32-7042, *Solid and Hazardous Waste Compliance*.

2.4.16. Ensures turn-in of consumable/expendable XB3 material and scrap is properly accomplished as outlined in AFMAN 23-110.

2.4.17. Ensures personnel are trained and resources are available for CDDAR.

2.4.18. Designates a Unit Environmental Coordinator (UEC) to work environmental coordination, implementation, and compliance with the installation MXG/OG Environmental Coordinator, the installation environmental flight, and the installation Hazardous Material Management Process (HMMP) team for ESOH issues.

2.4.19. Ensures compliance with the environment safety and occupational health programs as identified in AFD 90-8, *Environment, Safety, and Occupational Health*, AFD 91-3, *Occupational, Safety, and Health*, AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, and the AFI 32-7XXX series environmental instructions.

2.4.20. Appoints custodians to manage the custodian authorization and custody receipt listing (CA/CRL).

2.4.21. Participates in quarterly QA reviews.

2.4.22. Has a working knowledge of MIS (Maintenance Information System) and ensures its use.

2.4.23. Analyzes unit manning authorizations and the individuals assigned to ensure an adequate balance of career fields, task certified personnel, and certified personnel listed on the SCR exist to meet mission requirements.

2.4.24. Endorses adding an individual to the SCR and forwards to the QA Supt. for final review prior to submission to the MXG/CC for approval and inclusion on the SCR.

2.4.25. Maintains a current copy of the unit personnel manpower roster (UPMR). Maintains a record of personnel actions and verifies entry of approved actions into the personnel data subsystem.

2.5. Maintenance Supervision Responsibilities. The Flight OIC/Squadron Maintenance Officer SMO/ Superintendent SUPT shall also be referred to as: maintenance supervision. As applicable, maintenance supervision advises the Squadron/flight commander on technical matters and leads a mission focused maintenance effort. Manages resources necessary to accomplish the mission. Provides necessary administration to manage assigned responsibilities. Controls maintenance through Production Supervisors, element and workcenter supervisors. All responsibilities differ only in degree and are common and applicable to all maintenance functions. The maintenance supervisor is responsible to the squadron maintenance officer. Maintenance Supervision:

2.5.1. Maintains a copy of the SCR for the flight.

2.5.2. Establishes a technical administration function and an internal distribution system to centrally administer technical maintenance functions required by their subordinate flights, as applicable (TODAs).

2.5.3. Adjusts resources to meet production requirements.

2.5.4. Assigns adequate supervisory coverage for each shift, ensuring senior NCOs and officers are rotated through days, swings, or night shifts.

2.5.5. Submits name for approval to MXG/CC, to be added/deleted from the SCR. Ensures the SCR is reviewed semi-annually by appropriate workcenter supervisors to verify that all entries are current, accurate and prerequisites including applicable training, testing, evaluation, or other requirements for task certification have been completed. Takes appropriate, timely action to decertify/recertify personnel affected by non-judicial punishment actions or other administrative actions affecting maintenance qualifications.

2.5.6. Ensures Oil Analysis Program (OAP) is monitored and administered according to ANGI 21-105.

2.5.7. Monitors closely monitors aircraft/equipment impoundments.

2.5.8. Ensures aircraft/support equipment is available to support unit training objectives.

2.5.9. Ensures timely and accurate engine data is provided to the engine management element for all applicable engines.

2.5.10. Ensures personnel are qualified to support SGO, concurrent servicing operations, and hot refueling operations (as applicable).

- 2.5.11. In coordination with QA, establishes squadron procedures for the Aircraft Structural Integrity Program (ASIP) as applicable. Complies with program guidance IAW AFI 63-1001. All point of contact information will be provided to the ASIP manager.
- 2.5.12. Supports aircrew debriefing procedures.
- 2.5.13. Ensures a sufficient number of personnel are qualified to perform mission critical tasks listed on the SCR Table in Chapter 18.
- 2.5.14. Complies with Base OI for hot brakes incidents. Establishes procedures to effectively respond to hot brakes incidents as applicable.
- 2.5.15. Ensures unit SGO training requirements are supported and consistent with the unit's wartime tasking IAW Chapter 18.28.
- 2.5.16. Designates Supervisors. The best-qualified people are selected within the constraints of AFMAN 36-2108, *Airman Classification*. **EXCEPTION:** Munitions Element supervisors will be appointed IAW AFI 21-201.
- 2.5.17. Reviews the unit manpower document (UMD)
- 2.5.18. Allocates projected gains against pending or actual vacant slots.
- 2.5.19. Is responsible for training subordinate officers and SNCOs.
- 2.5.20. Monitors workforce availability. Ensures shift scheduling considers additional duties, leave, ancillary training, and details to provide maximum capability and minimize work force degradation.
- 2.5.21. Reviews and consolidates monthly maintenance plan inputs from flights/sections and forwards to PS&D.
- 2.5.22. Ensures only qualified personnel accomplish maintenance with the appropriate equipment and tools.
- 2.5.23. Ensures compliance with Air Force 91, and 48- series safety directives, appropriate Air Force occupational safety and health standards (AFOSH STD), and applicable industrial safety publications.
- 2.5.24. Monitors and updates local IPI requirements; forwards to QA a list of tasks requiring IPIs IAW Chapter 10 of this instruction.
- 2.5.25. Monitors environmental protection guidance. Ensures compliance with AFD 90-8 and ensures compliance with Air Force 32-7XXX series environmental directives and applicable environmental protection / compliance guidance.
- 2.5.26. Ensures security, storage maintenance, and proper use of equipment according to AFMAN 23-110.
- 2.5.27. Complies with procedures to control repair cycle assets IAW T.O. 00-20-3.
- 2.5.28. Ensures HAZCOM and HAZMAT pharmacy programs are followed according to applicable directives. Also reference related series 91 and 161 AFOSH Standards.
- 2.5.29. Ensures deferred maintenance, pilot reported discrepancies (PRD) and back-ordered parts are properly managed. Periodically reviews on-line products.

2.5.30. Ensures PRDs, scheduled, and unscheduled maintenance actions are entered and completed in the MIS. This includes maintenance performed in support of maintenance squadron flights.

2.5.31. If a functional area warrants QA augmentation, technicians are recommended by the squadron maintenance officer/superintendent and approved by the QA superintendent.

2.5.32. Coordinates with medical service agencies responsible for monitoring potentially hazardous environmental conditions within maintenance and industrial areas.

2.5.33. Advises the MOC and the Production Supervisor of conditions that may disrupt the orderly and controlled execution of the maintenance plan.

2.5.34. Coordinates permanent change of assignment (PCA) actions. Ensures required documentation is completed and submitted. Ensures the SQ/CC and squadron technical-administration section is briefed on all pending and completed PCA actions.

2.5.35. Ensures that a squadron SERENE BYTE or PACER WARE response capability exists IAW AFI 10-703, *Electronic Warfare Integrated Reprogramming*, as applicable.

2.5.36. Ensures adequate control of the land mobile radios (LMR) assets.

2.5.37. Establishes a method for distributing maintenance cross-talk messages, QA reports/newsletters, policy announcements, technical notifications, and other important maintenance information for which no formal notification process exists.

2.5.38. Ensures an annual maintenance plan is developed and reconciled with the flying schedule to ensure maintenance can support the annual flying/test program. Keeps aircraft and munitions reconfigurations to a minimum. Missions requiring, specific weapons (BDUs, PGMs, missiles etc), LANTIRN pods, CFTs, WBTs, external tanks, ECM pods, ACMI pods etc, must be scheduled concurrently to reduce the number of reconfigurations required during a flying period. The length of this period is MDS and mission dependent and left to unit discretion.

2.5.39. Monitors requirements for composite tool kits (CTK), special tools and support equipment (SE) and takes necessary action to ensure availability, as required.

2.5.40. Reviews applicable support agreements (SA) annually or as required and makes recommendations for changes.

2.5.41. Enforces ANG standards on location of G-series files (hard copy or electronic T.O.s carried on aircraft).

2.5.42. Complies with procedures to ensure accountability of Ground Instructional Trainer Aircraft (GITA).

2.5.43. Reviews the Status Of Resources and Training System (SORTS) information for their organization.

2.5.44. Ensures Special Purpose Recoverables Authorized Maintenance (SPRAM) accounts are established IAW AFI 21-103 and AFMAN 23-110.

2.5.45. Ensures Alternate Mission Equipment (AME) and SPRAM accountability and control requirements are met IAW AFI 21-103.

2.5.46. Enforces strict adherence to technical data and management procedures. Ensures all supervisors understand the importance of using current technical data and advocates use of the

T.O. improvement program (T.O.-00-5-1). Ensure workcenter T.O. files are maintained according to T.O. 00-5-2.

2.5.47. Ensures aerospace equipment forms and MIS documentation are completed, accurate and accomplished for each shift. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.5.48. Coordinates the work shift schedule with the Production Supervisor and maintenance supervision to ensure sufficient people are available to support the mission.

2.5.49. Ensures operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW T.O. 00-20-1, *Aerospace Vehicle Inspection and Documentation*.

2.5.50. Ensures the corrosion control program is implemented and properly managed.

2.5.51. Selects qualified personnel to perform production inspections (e.g. SCR items) and forward names to maintenance supervision for approval.

2.5.52. Reviews Maintenance Data Systems Analysis (MDSA), QA, and other management reports to determine appropriate management actions to meet new workloads, target deficiencies, and identify and correct root causes.

2.5.53. Approves requirements for bench stocks and provide guidance as to the type, location and use by one or more sections. Spot check bench stocks to evaluate adequacy, supply discipline, and housekeeping.

2.5.54. Establishes and review requirements for vehicles and SE, and ensure procedures for their operation and maintenance are enforced.

2.5.55. Ensures reparable parts are promptly processed through repair channels within the required time frame. Reference AFMAN 23-110.

2.5.56. Monitors shift manpower distribution, including distribution of supervision, and make necessary adjustments. Imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades, are identified to Squadron/flight commander.

2.5.57. Ensures personnel are identified to meet deployment tasking according to the unit's DOC statement IAW AFI 10-403, *Deployment Planning*, AFI -10-215, *Personnel Support for Contingency Operations (PERSCO)*, and AFMAN 10-401, *Operations Plan & Concept Plan Development and Implementation*.

2.5.58. Monitors tool and equipment management and special tool needs IAW Chapter 13 of this instruction. Also enforces procedures for control, storage, and management of alternate mission equipment (AME), dash 21 equipment, and maintenance, safety, and protective equipment (MSPE) according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*.

2.5.59. Provides inputs to maintenance and flying schedules, and execute scheduled maintenance plans.

2.5.60. Ensures elements maintain records of inspection, lubrication, and maintenance of industrial equipment according to the appropriate general maintenance manuals and T.O.s on AFTO Form 244, **Industrial/Support Equipment Record**, or AF Form 2411, **Inspection**

Document.

- 2.5.61. Ensures procedures are followed to identify, record, and clear repeat/recurring, and CND discrepancies.
- 2.5.62. Manages the responsibilities in the FOD and DOP program IAW Chapter 18 of this instruction.
- 2.5.63. Manages additional duties, leaves, ancillary training, and assigns personnel to base and work details (when tasked by the SQ/CC) to balance workload and minimize negative impacts on the work force.
- 2.5.64. Ensures training requirements are executed in support of the established training plan and individual AFSC Career Field Education and Training Plans (CFETP). Ensure all personnel complete the Shop Level Pollution Prevention (P2) training program and the ESOH training requirements as applicable.
- 2.5.65. Ensures compliance with T.O. 33K-1-100, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*, applicable calibration measurement summaries (CMS), and T.O. 00-20-14, *AF Metrology and Calibration Program*, in the use, care, handling, transportation, calibration of TMDE and scheduled for calibration IAW AFCSM 21-566.
- 2.5.66. Consolidates section inputs for items received in LRS requiring functional check, operational programming, or calibration. Submit the listing to LRS inspection section.
- 2.5.67. Coordinates all new aerospace ground equipment (AGE) requirements through the AGE element to ensure support capability and eliminate unnecessary duplication of equipment.
- 2.5.68. Ensures bench stock and tool/equipment storage areas are managed appropriately IAW Chapter 8 and 13 of this instruction.
- 2.5.69. Ensures general housekeeping, safety, security and environmental control and AFOSH standards are followed.
- 2.5.70. Establishes a safety program designed specifically for mishap prevention and the identification and abatement of hazards associated with the workcenter IAW Chapter 9.
- 2.5.71. Monitors and ensures environmental health physicals and respirator training, initial and recurring requirements, are accomplished when required for assigned personnel (refer to AFOSH STDs).
- 2.5.72. Monitors and ensures AF Form 55, **Employee Safety and Health Record**, is documented IAW AFI 91-301, *Air Force Occupational and Environmental, Safety, Fire Protection and Health (AFOSH) Program* applicable AFOSH standards.
- 2.5.73. Administers the squadron safety program in the flight. Ensure all personnel obtain the required safety training. Ensure safety information is available and personnel in hazardous areas are briefed about the dangers. Identify requirements to the bioenvironmental engineers; ensuring facilities meet Air Force industrial environmental standards IAW AFI 91-302, *Air Force Occupation and Environmental, Safety, Fire Protection and Health (AFOSH) Standards*.
- 2.5.74. Evaluates maintenance quality, the qualifications of personnel, and training deficiencies by working with element supervisors and by observing personnel performance. Review QAP results and trends, target areas for improvement, and also recognize quality performers.

2.5.75. Develops training requirements, evaluates skills, aptitudes and proficiency of assigned people. Ensures CUT requirements are identified as required by the unit mission. Ensures CUT does not interfere with upgrade training or qualification training of individuals not qualified on the assigned weapon system.

2.5.76. Reviews deferred maintenance weekly for accuracy and to determine if appropriate and timely actions are being taken. Use MIS screens/Automated Records Check and coordinate with the Production Supervisor for accomplishment.

2.5.77. Reviews the aircraft automated records check after it has been validated by the element supervisors. Refer to Chapter 7 for records check procedures.

2.5.78. Ensures MIS data records, the D23 (repair cycle asset management list), and other pertinent products are reviewed to ensure proper asset management. Ensure provisions of ANG and functional area instructions and regulatory guidance are followed; manage shortfalls and supply difficulties by monitoring pacing items that affect the mission.

2.5.79. Ensures, when applicable, that warranty items are loaded in MIS according to applicable MIS directives; and deficiency reports (DR) are accomplished on warranted item failures according to T.O. 00-35D-54, *USAF Deficiency Reporting and Investigating System*, and AFMAN 64-110, *Manual for Weapons Systems Warranties*. Coordinate with the QA product improvement manager (PIM), as needed.

2.5.80. Ensures the maintenance of bench sets or mock-ups are maintained using applicable tech data or Air Force general equipment T.O.s.

2.5.81. Enforces procedures for managing lockout and tag-out situations (IAW Chapter 9 and AFOSH STD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*).

2.5.82. Ensures supervision is aware of any critical shortages of personnel, aircraft, equipment, or components.

2.5.83. Ensures tools and equipment are scheduled for calibration IAW AFCSM 21-566, T.O. 33K-1-100, and 00-20 series technical orders.

2.5.84. Ensures review of new, revised, or changed publications/technical orders and that personnel are informed of any significant changes. Decides if new or changed publications affect the qualifications of personnel. Ensures workcenter publications are current and required publications are available to meet workcenter needs.

2.5.85. Solicits, actively, solicit inputs and promotes the product improvement and R&M programs.

2.5.86. Ensures only designated personnel listed on SCR are verifying Urgency of Need (UND) 1A and JA requirements.

2.5.87. Monitors cannibalization actions.

2.5.88. Ensures compliance with precious metals recovery program, as applicable, in accordance with AFMAN 23-110 *USAF Supply Manual* retain and file records in compliance with AFMAN 37-139 *Records Disposition Schedule*.

2.5.89. Ensure personnel know specific disaster control duties and provisions of AFMAN 32-4004, *Emergency Response Operations*, and AFI 10-229, *Responding to Severe Weather Events*,

with regard to the movement of aircraft, support equipment, and evacuation of flightline personnel.

2.5.90. Ensures personnel are familiar with unit CDDAR and understand local OIs designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.5.91. Ensures assigned personnel have access to the equipment and resources necessary to perform their job.

2.5.92. Ensures organizational compliance with all federal, state, and local laws pertaining to environmental regulation and pollution prevention. Enforce local environmental protection guidance and monitor compliance. Supervisors will work closely with the base Civil Engineer's environmental office to identify specific local requirements.

2.5.93. Manages administrative details, including personnel performance reports, additional duties, training, appointments, etc.

2.5.94. Participates in daily maintenance planning and scheduling meetings, as applicable.

2.5.95. Ensures procedures are followed to control disposal of recoverable materials, including scrap metal and silver-bearing materials, IAW AFMAN 23-110, *USAF Supply Manual* and T.O. 00-25-113, *Conservation and Segregation of Critical Alloys and Precious Metal Bearing Parts and Scrap*.

2.6. Not Used.

2.7. Element/Workcenter Supervisor: The element/workcenter supervisor is responsible for the leadership, supervision, and training of assigned personnel. The element/workcenter supervisor is a first-line manager and supervisor of maintenance production and, as such, is the technical authority and advisor in that area. Depending upon the organizational structure of the assigned weapon system, it may be necessary to assign the following responsibilities to one or more supervisors/small shop chiefs as deemed most appropriate. The element/workcenter supervisor accomplishes the following:

2.7.1. Enforces strict adherence to technical data and management procedures. Ensures all personnel understand the importance of using current technical data and advocates use of the T.O. improvement program (T.O.-00-5-1). Ensure workcenters T.O. files are maintained according to T.O. 00-5-2, *USAF Technical Order Distribution System*. Conducts face-to-face counseling with personnel who violate directives.

2.7.2. Ensures aerospace equipment forms and MIS documentation are completed, accurate and accomplished for each shift. Ensures aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.7.3. Performs production and supervisory inspections.

2.7.4. Reviews, evaluates, and takes corrective action based on QA and other inspection reports.

2.7.5. Ensures personnel follow procedures for identifying, recording and clearing repeat/recur and CND discrepancies.

2.7.6. Identifies items requiring calibration or operational check before installation. Provides a list of these items for distribution to LRS and maintenance.

2.7.7. Manages tool storage, and tool replacement. Ensure adequate CTKs, equipment and

special tools are available to support weapon system requirements. Chapter 13 prescribes CTK procedures.

2.7.8. Maintains WRM assets such as 463L pallets, parachutes, support equipment, vehicles, etc.

2.7.9. Ensures housekeeping, safety, security and environmental control standards are followed.

2.7.10. Provides work and workforce planning factors (projected leaves, section backlog, etc) to maintenance supervision.

2.7.11. Reviews new, revised, or changed publications/technical orders and brief personnel on significant changes. Determines if new or changed publications affect the qualifications of personnel. Ensures publications are current and required publications are available to meet weapon system requirements

2.7.12. Solicits inputs and promote the Product Improvement and Reliability and Maintainability (R&M) Programs as outlined in T.O. 00-35D-54.

2.7.13. Manages the repair cycle program. Review the D23 weekly and other pertinent supply products to ensure proper supply discipline.

2.7.14. Monitors, tracks, and ensures occupational safety, fire prevention, occupational and environmental health requirements, and respirator training (initial and recurring) are accomplished for assigned personnel.

2.7.15. Determines maintenance tasks requiring IPI. Forward IPI listing through maintenance supervision for consolidation.

2.7.16. Evaluates skills, aptitudes and proficiency of assigned personnel to develop workcenter-training requirements. Ensures cross-utilization training (CUT) requirements are identified as required by the unit mission, and are implemented according to command training instructions and Chapter 1 of this instruction.

2.7.17. Ensures personnel are trained on specific MIS subsystems as follows:

2.7.17.1. Use of the MIS.

2.7.17.2. Interpretation of products and reject narratives.

2.7.17.3. How to request background products.

2.7.17.4. Job data documentation.

2.7.17.5. Location of appropriate MIS manuals.

2.7.18. Reviews documented discrepancies for the workcenter on a daily basis (CAMS screen #100 /380 and G081 screen #8069/9129A/67033) to monitor scheduled and deferred events. All events that show status of scheduled and are beyond their scheduled date and time must be closed, rescheduled, or deferred.

2.7.19. Reviews workcenter MIS data entries for the previous day, and all preceding non-duty days, for job accuracy and completeness (CAMS screen #100 and G081 screen 8070).

2.7.20. Evaluates assigned personnel and determines training needs. Tracks training requirements and ensures personnel attend required training. Ensures training documentation is accurate. When applicable, ensures AETC TRSS developed training materials are used to supplement qualification training.

2.7.21. Spot checks bench stock and operating stocks for authorized levels and enforce supply discipline. Chapter 8 of this instruction prescribes procedures for bench stock management.

2.7.22. Ensures personnel and equipment are identified and prepared to meet deployment tasking IAW AFI 10-403, *Deployment Planning*, AFI 10-215, *Personnel Support for Contingency Operations (PERSCO)*, and AFMAN 10-401, *Operations Plan & Concept Plan Development and Implementation*.

2.7.23. Evaluates the quality of maintenance and qualifications of personnel through observation and inspection of maintenance actions, initiate corrective actions as required.

2.7.24. Establishes a workcenter safety program designed specifically for mishap prevention, and the identification and abatement of hazards IAW AFOSH standards and other applicable safety related directives.

2.7.25. Ensures TMDE maintenance and calibration requirements are met. Ensure TMDE that is overdue calibration, is not used without ANG/LGM approval for calibration extension.

2.7.26. Ensures technicians are available for debrief, as requested, to assess weapon system performance.

2.7.27. Participates in the Bad Actor Program according to T.O.s 00-20-1 and 00-35D-54, *Deficiency Reporting*.

2.7.28. Implements and executes a self-inspection program IAW Chapter 18.

2.7.29. Ensures that workcenter specific responsibilities outlined in ANGI 21-105 are followed.

2.7.30. Maintains master equipment ID number lists when required.

2.7.31. Ensures the training of and annual recertifying of crash recovery team personnel.

2.7.32. Maintains historical records. Element supervisors maintain AFTO Forms 95 on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system dash-06 manuals. Historical records should be automated (T.O. 00-20-1).

2.7.33. Maintains a current copy of the Qualified Products Listing (QPL). The QPL identifies qualified products (i.e., cleaners, paints, etc...) within a particular Mil-spec and are the only approved materials for use on ANG aircraft, subsystems and support equipment. Products not listed on the QPL are unauthorized and will not be used. The QPL can be located at the following Air Force Corrosion Prevention and Control Office web site: <http://www.afcpo.com/>.

2.7.34. Notifies QA prior to start of the first TCTO accomplishment.

2.8. Production Supervisor (Pro Super). The Production Supervisor directs the overall maintenance effort of their unit. The Pro Super will be a SNCO. At local option, Expediter and Production Supervisor duties may be combined provided all duties of both functions are performed. The Pro Super will:

2.8.1. Enforce strict adherence to technical data and management procedures. Advocate the importance of using current technical data and use of the T.O. improvement program (T.O. 00-5-1).

2.8.2. Ensure aerospace equipment forms and MIS documentation are completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and

the MIS.

2.8.3. Direct the maintenance effort using available resources. Involved in developing and executing the monthly and weekly flying and maintenance plans.

2.8.4. Authorize aircraft-to-aircraft CANNs. Coordinate with Propulsion Element for engine-to-aircraft CANNs.

2.8.5. Inform the MOC of the maintenance effort and coordinates with MOC and other squadrons for support. Provide specific aircraft status update information as required.

2.8.6. Attend and/or conduct the squadron's daily maintenance meeting.

2.8.7. Determine/track aircraft status.

2.8.8. Understand aircraft status and inventory reporting as covered in AFI 21-103, and applicable supplements. Works closely with Expeditors and the maintenance operations center (MOC) to ensure actual aircraft status matches aircraft status reported in the MIS. Notifies MOC on job completions, ETIC changes, or significant problems.

2.8.9. Be familiar with the actions required by the squadron under SIOP or contingency plans. Direct aircraft generation flow. Responsible for developing and keeping the aircraft generation sequence current.

2.8.10. Maintain access to a current copy of the base grid map with cordon overlay and appropriate check sheets outlining duties during disaster exercises. Will be familiar with specific disaster control duties and squadron responsibilities, and with the portion of AFI 32-4001, *Disaster Preparedness Planning and Operations*, and unit operations order (OPORD) pertaining to movement of aircraft, support equipment, and evacuation of flightline personnel.

2.8.11. Manage the maintenance production effort by assigning priorities to meet the flying and maintenance schedules. Aggressively works not-mission capable (NMC) aircraft.

2.8.12. Direct cannibalization on assigned aircraft and coordinates the action with the MOC prior to cannibalization actions. MOC will coordinate cannibalizations actions with LRS.

2.8.13. Verify MICAP conditions.

2.8.14. Be thoroughly familiar with unit CDDAR and understand OIs designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.8.15. Sign exceptional release (ER) IAW T.O. 00-20-1.

2.9. Expediter: Expeditors lead people and manage resources to accomplish scheduled and unscheduled maintenance. Expeditors work with the Pro Super and MOC in generating aircraft, ensuring maintenance accomplishment and sortie production by managing, controlling and directing allocated resources. At local option, Expediter and Production Supervisor duties may be combined; provided all duties of both functions are performed. Waivers to this paragraph will be directed to ANG/LGMM. Expediter's responsibilities:

2.9.1. Enforces strict adherence to technical data and management procedures. Advocates the importance of using current technical data and use of the T.O. improvement program (T.O.-00-5-1).

- 2.9.2. Ensures aircraft forms documentation is complete, accurate, and accomplished. In coordination with MOC, ensures aircraft status is accurately reflected in both the maintenance forms and the MIS.
- 2.9.3. Coordinates aircraft mission capable status and aircraft configuration status IAW AFI 21-103, to include discrepancy, WUC, ETIC, and job completion with the MOC and the Production Supervisor.
- 2.9.4. Updates status of cannibalization actions on assigned aircraft.
- 2.9.5. Ensures aircraft are ready for flight.
- 2.9.6. Ensures parts are ordered using appropriate priorities, document numbers are relayed to the Pro Super and MOC, and picked up expeditiously from the flightline dedicated supply element (FDSE). Expeditors may verify MICAP requisitions.
- 2.9.7. Coordinates with the MOC for support beyond squadron capability.
- 2.9.8. Maintains a current base grid map with cordon overlay and appropriate check-sheets outlining duties during disasters or exercises.
- 2.9.9. Remains on the flightline when maintenance is being performed and during aircraft launches and recoveries. Flightline expeditors do not normally perform duties that are the responsibility of production inspectors, e.g., sign off "red Xs" and perform IPIs.
- 2.9.10. The specialist expeditor (if used), weapons expeditor, back shop maintainers, and element/workcenter supervisors coordinate all aircraft maintenance actions with the flightline expeditor and MOC.
- 2.9.11. Possesses an overall knowledge of the primary assigned aircraft and systems, and has demonstrated the ability to supervise personnel, control work, and resolve conflicts.
- 2.9.12. Reviews continually reviews the active aircraft forms.
- 2.9.13. Reviews aircraft forms prior to requesting/ signing ER.
- 2.9.14. Maintains a copy of the flying schedule, emergency action and procedural check sheets, base grid map, IPI listings, MESL, QRL, a WUC manual, and a device or method for tracking aircraft status in the expeditor vehicle. The tracked status reflects aircraft serial number, location, priority, mission capability status and ETIC, configuration, OAP condition codes, fuel load, munitions load, and remarks for each assigned aircraft (mission capability status requirements are based on tasking and MDS). Show all limitations against the FSL and BSL column as itemized on the MESL (AFI 21-103). Reconnaissance units ensure devices depicting aircraft status comply with program security requirements.
- 2.9.15. Notifies MOC and Pro Super when aircraft are ready for ER, flight (crew ready) and crew show, engine start, taxi, block-in, and aircraft configuration (e.g. fuel, munitions, cargo).
- 2.9.16. Follows established cannibalization procedures.
- 2.9.17. Direct AGE drivers to position AGE as required and notify the AGE driver of AGE requiring maintenance.
- 2.9.18. Reviews Deferred Discrepancies (DDs) and coordinates with the responsible workcenter for completion.

2.9.19. Ensures supply document numbers are relayed to crew chiefs/specialists for entry into aircraft and equipment forms.

2.9.20. Monitors aircraft OAP status and ensures sampling is completed IAW AFI 21-124.

2.9.21. Be thoroughly familiar with unit CDDAR and understand local OIs designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.9.22. Tracks all discrepancies identified during "Red Ball" maintenance and takes proper follow-up action.

Chapter 3

AIRCRAFT/HELICOPTER MAINTENANCE SQUADRON

3.1. General. Services, inspects, maintains, launches, recovers assigned and transient aircraft (if applicable), and ensures all mobility requirements are met. There is normally one AMXS/HMXS per each mission design series (MDS) aircraft, one Aircraft Maintenance Flight (AMF) for each assigned Operations Squadron (OS), and one Sortie Support Flight (SSF) for each AMXS/HMXS. **NOTE:** The terms and responsibilities associated with the sections identified in this chapter may differ or may not be applicable to all units based on unit size, mission, and MDS assigned.

3.1.1. Aircraft Generation. Aircraft generation is the cumulative effort required to launch and recover sorties. It includes activities that generate sorties and train personnel to generate sorties, and is predominantly accomplished in an on-equipment environment. Units will sustain capability to accomplish sortie generation for peacetime and wartime taskings. A typical sortie generation sequence usually begins with recovery of an aircraft from another mission. Because aircraft recovery and generation activities are directly related, aircraft recovery is the first step in aircraft generation. AMXS is responsible for developing EOR procedures, IAW Chapter 18 and MDS -6 requirements.

3.1.2. On-equipment maintenance is performed to prevent equipment/system failures, repair them when they occur, and improve airframe availability and reliability.

3.1.3. Launching and recovering aircraft. Aircraft technicians ensure mission accomplishment by launching and recovering aircraft. During the launch and recovery of aircraft, deficiencies will be identified on aircraft and equipment. These deficiencies, in the form of jobs, are assigned job numbers, and repair priorities are aligned to most effectively meet mission requirements.

3.2. Squadron/Flight Commander Responsibilities. The Squadron/flight commander performs command functions outlined by public law, or directives common to all ANG Squadron/flight commanders. The Commander is responsible to the MXG/CC for overall squadron management. General responsibilities are outlined in Chapter 2.

3.2.1. Ensures each AMF provides input for development of an annual maintenance plan and reconciles it with operations scheduling to ensure maintenance capabilities are not exceeded and commitments can be met.

3.2.2. Executes a rotation plan (within ANG manpower guidelines) that balances grade, skill level and experience of AFSC 2A6X6 and 2A6X5, 2A6X1, 2A5X1 personnel between aircraft maintenance and back shop. Ensures personnel are rotated, as necessary, to enhance individual experience and knowledge.

3.2.3. Ensures personnel understand the purpose of the AF Form 2409, **Generation Sequence Action Schedule**, or electronic form containing the same information.

3.2.4. Ensures an explosive safety and chaff/flare academics and loading program is established in airlift, helicopter, and tanker units.

3.2.5. If applicable, publishes procedures covering the storage, control, and handling of starter cartridges (flightline and alert) to meet the daily alert, training, and SIOP requirements.

3.2.6. Provide input to MDSA for the monthly report to ANG/LGMM.

3.2.7. Chairs a daily maintenance meeting.

3.2.8. For Consolidated Aircraft Support System (CASS) units:

3.2.8.1. Ensures conditioned air ducts, liquid coolant hoses, start (bleed) air ducts, power cables, and any couplings used to interface with the aircraft are inspected for serviceability.

3.2.8.2. Provides housekeeping of the pits to include water or snow removal and removal of pit lids to provide access.

3.2.9. Ensures SPRAM accounts are established IAW AFI 21-103 and AFMAN 23-110.

3.2.9.1. Ensures SPRAM accounts are maintained IAW AFI 21-103 for Alternate Mission Equipment (AME) External Fuel Tanks, and F-15 Conformal Fuel Tanks (CFT).

3.2.10. When tasked ensures the squadron trains sufficient Aircraft Cross Servicing (ACS) Stage A cross-servicing crews and that the crews maintain proficiency to meet NATO requirements. Document ACS training on the Allied Command Europe (ACE) Form ACSC. Refer to SHAPE OPS-60 for specific ACS requirements.

3.2.11. Ensures EOR procedures are developed IAW T.O. 00-20-1 if applicable.

3.3. The Aircraft Maintenance Flight (AMF) is responsible for servicing, inspecting, maintaining, launching, and recovering assigned aircraft, and ensures all mobility requirements are met. AMF may include the following sections: production, aircraft, and specialist.

3.3.1. Maintenance Supervision Responsibilities. Maintenance supervision is responsible for sortie generation and the management/supervision/training of assigned personnel. Maintenance supervision allocates personnel and resources to the production effort. In addition to the common responsibilities in Chapter 2, the maintenance supervision:

3.3.1.1. Reviews Pilot Reported Discrepancies (PRDs) daily and ensures proper maintenance actions are taken.

3.3.1.2. Reviews all aborts and ensures proper maintenance actions are taken.

3.3.1.3. Ensures aircraft phase/isochronal flow is sufficient to meet required taskings.

3.3.1.4. Monitors cannibalization (CANN) actions.

3.3.1.5. Ensures that assigned positions are filled with qualified technicians.

3.3.1.6. Ensures that sufficient number of personnel are engine run qualified IAW AFI 11-218.

3.3.1.7. Ensures all maintenance actions are documented in the MIS.

3.3.1.8. Reviews transcribed AFTO 781 series forms, and workcenter MIS data entries for the previous day, and all preceding non-duty days, for job accuracy and completeness (CAMS screen #100 and G081 screen 9032).

3.3.2. Production Supervisor. The Production Supervisor is responsible for squadron maintenance production. The MXG/CC may combine Production Supervisor and flightline expediter duties. Duties are outlined in Chapter 2.

3.3.3. Flightline Expediter. The expediter ensures maintenance is accomplished. An expediter is authorized for each aircraft section. Duties are outlined in Chapter 2.

3.3.4. Crew Chief Section. The crew chief sections are the primary workcenters responsible for maintaining the assigned aircraft. Based on the number of aircraft and personnel assigned, MXG/CCs have the option to split into more than one crew chief section.

3.3.4.1. Crew Chief performs:

3.3.4.1.1. Common crew chief section tasks include servicing, scheduled and unscheduled maintenance, pre-flights, thru-flights, basic post-flights, home station checks, special inspections, corrosion control, cleaning, ground handling, launch and recovery of aircraft, troubleshooting and adjustment, on-equipment repairs, component removal and replacement, and ensuring documentation of maintenance actions.

3.3.4.1.2. The crew chief will:

3.3.4.1.2.1. Enforce strict adherence to and comply with technical data and management procedures. Advocates the importance of using current technical data and use of the T.O. improvement program (T.O.-00-5-1).

3.3.4.1.2.2. Ensure aerospace equipment forms and MIS documentation are completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS. Perform aircraft document review.

3.3.4.1.2.3. Document and identify maintenance and support requirements to the expediter or element/workcenter supervisor.

3.3.4.1.2.4. Accumulate knowledge of the aircraft's long-term problems, and take steps to fix those problems.

3.3.4.1.2.5. Ensure timely corrective action is taken on all delayed and deferred discrepancies.

3.3.4.1.2.6. Ensure that helicopter crew chiefs perform vibration analysis in flight.

3.3.4.1.2.7. Coordinate with Pro Supers, expediters, for downtime to accomplish scheduled and unscheduled maintenance.

3.3.4.1.2.8. Manage and supervise maintenance on their aircraft and accompanies their aircraft during all aspects of maintenance.

3.3.4.1.2.9. Perform ground handling, servicing, basic post-flight, pre-flight, thru-flight, home station checks, phase and ISO inspections, acceptance and transfer inspections, special inspections, launch and recovery, SGOs, quick turns, alert duties, maintenance ground test, corrosion control, wash, lubrication, and maintenance and modification preparations as applicable on their aircraft.

3.3.4.1.2.10. Perform engine operation when qualified and certified.

3.3.4.1.2.11. Ensure replacement parts are requisitioned and documentation is completed.

3.3.4.1.2.12. Attend pre- and post-dock meetings, accompanies the aircraft through scheduled inspection (programmed depot maintenance (PDM)), and assists the inspection dock chief as needed.

3.3.4.1.2.13. Accomplish on-aircraft dash 21 equipment inventories when this responsibility is not assigned to another function.

3.3.4.1.2.14. Ensure DIFM assets within their control are turned into LRS.

3.3.4.1.2.15. Ensure aircraft technical order (G) files kept on the aircraft are current and complete for use.

3.3.4.1.2.16. Ensure, when authorized, that crew chief and assistant crew chief's name and rank is stenciled or painted on their aircraft. Follow the established wing paint scheme, unit standards, and marking procedures in T.O. 35-1-3, *Corrosion Prevention, Painting, and Marking of USAF Equipment*, and T.O. 1-1-8, *Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft*. 3.3.4.1.2.17. Perform as OJT trainers/certifiers as required.

3.3.4.1.2.18. Take oil samples and complete appropriate documentation, as required.

3.3.5. Specialist Section if assigned. Common tasks for the specialist section are aircraft systems troubleshooting, on-equipment repairs, component removal and replacement, aircraft avionics systems classified item management, aircraft ground handling, servicing, and cleaning. The section may include avionics, propulsion, hydraulics, and electro/environmental technicians. Other functions may be added at the discretion of the AMF. When used, the specialist section expediter coordinates maintenance priorities with the Pro Super and flightline expediters.

3.3.5.1. In addition to the common responsibilities in Chapter 2, the specialist element/workcenter supervisor:

3.3.5.1.1. Actively promotes cross-talk with applicable maintenance units to obtain information on system/component repeat/recur and cannot duplicate (CND) trends.

3.3.5.1.2. Provides support for Phase/Isochronal Inspections.

3.3.5.1.3. Attends Phase/Isochronal Pre-Docks if required to provide specialist support.

3.3.5.2. Avionics Specialist if assigned.

3.3.5.2.1. Ensures awaiting parts (AWP) for the low altitude navigation and targeting infrared for night (LANTIRN) pods are transferred to the sensor section for cross-cannibalization in support of unit production.

3.3.5.2.2. Performs reprogramming of avionics systems as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

3.3.5.2.3. Maintains guidance and control systems.

3.3.5.2.4. Maintains communication and navigation systems including interphone cord repair.

3.3.5.3. Electronic Warfare Specialist: Functions may be combined with the Avionics Element.

3.3.5.3.1. Maintain inventory control of all ECM AME and ECM pods.

3.3.5.3.2. Performs reprogramming of avionics/electronic warfare systems (to include electronic attack pods) as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

3.3.5.3.3. Load contingency and training configuration settings in ECM pods, infrared countermeasures systems, and RWR/RTHW systems, unless the equipment is assigned to another section.

3.3.5.3.4. Transport and load ECM pods.

3.3.5.3.5. Verify operation of the installed RWR/RTHW systems.

3.3.5.3.6. Coordinate with wing EW officer, AMF and MXS/EMF/CMF Pro Supers for EW integrated reprogramming.

3.3.6. Propulsion Specialists if assigned.

3.3.6.1. Troubleshoots, repairs, and replaces aircraft propulsion systems.

3.3.6.2. Performs aircraft engine downloads if required by T.O.s.

3.3.6.3. Performs flightline engine borescope inspections.

3.3.6.4. Ensure pertinent worksheets, historical records, and troubleshooting information regarding engine removals are provided to the propulsion element.

3.3.6.5. Are the squadron focal point for engine maintenance training.

3.3.6.6. Will be actively involved in the wing FOD and engine trending programs.

3.3.6.6.1. When FOD is identified, other than minor sand nicks or scratches, notify the Wing FOD Monitor prior to blade blending. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 IAW T.O. 00-20-1.

3.3.6.6.2. Notify the Engine Management Section with the following information for input into the engine historical records; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage, and employee number of maintenance personnel.

3.3.7. Electro/Environmental Specialists if assigned.

3.3.7.1. Troubleshoots, repairs, and replaces aircraft Electro/Environmental systems.

3.3.7.2. Maintains aircraft environmental control, bleed air, vacuum, pneumatic, installed fire extinguishing and suppressant systems, liquid and gaseous oxygen systems, and on-board oxygen generating systems and components. The E&E section services, repairs, modifies and tests components of these systems, as required. Using organizations are responsible to inspect gaseous and cryogenic servicing carts prior to use. Users are responsible to ensure the quantity of the liquid oxygen (LOX) or LN2 in the aircraft servicing cart does not fall below minimum levels prior to or during servicing.

3.3.8. Hydraulics if assigned. Hydraulics personnel maintain on-equipment pneumatic, hydraulic, and pneudraulic systems and components.

3.4. Weapons Element. This section normally consists of two sections; weapons loading and armament systems. Weapons expeditors may be assigned to manage flightline operations. A weapons loading section chief may be assigned to assist in managing flightline operations. Individual gun services and weapons release section chiefs may be assigned to support management of armament systems sections. An armament systems section chief may be assigned to assist in managing gun services, and weapons release sections. Weapons loading tasks will adhere to the minimum requirements of the weapons certification and weapons task qualification programs. Weapons personnel in rescue units are responsible for applicable portions of this chapter and Chapter 16 of this instruction. In addition to the common element supervisor responsibilities in Chapter 2, the weapons element supervisor:

3.4.1. Assists the wing weapons manager in recommending distribution of wing 2W1X1 personnel to satisfy weapons loading and on/off-equipment armament system maintenance

requirements.

3.4.2. Advises maintenance supervision and notifies the Wing Weapons Manager regarding factors which affect training, weapons loading or maintenance capabilities, load crew or Personnel Reliability Program (PRP) status, equipment and tester shortfalls, and other key weapons related issues.

3.4.3. Recommends the most qualified personnel in the weapons section to be lead crewmembers.

3.4.4. Ensures at least 85% of the authorized load crew stated on the UCML/TTML are trained and certified to perform the mission. Maintains load crew integrity during training and evaluations to the maximum extent possible. Ensures all load crews are trained to perform aircraft functional checks.

3.4.5. Ensures safe and reliable loading and maintenance procedures are used. Do not use more than one load crew to accomplish certifiable loading and unloading.

3.4.6. Maintains a visual aid or automated product depicting the current status of assigned load crews and members. Manually updates printed products from automated systems between issues. Printed products are not required if computer systems are networked or modem-interfaced with the weapons standardization (WS) load crew management system for on-line updates.

3.4.7. In coordination with the WS supervisor ensures load training aircraft requirements and load crew proficiency evaluation schedules are developed. Includes these schedules in the weekly and monthly maintenance plans. Ensures training aircraft are properly configured to support load-training requirements prior to scheduled training sessions.

3.4.8. May designate expeditors and subordinate supervisors.

3.4.9. Ensures a checklist for each PM and SM is on hand for each assigned load crew.

3.4.10. Reviews all AFTO Forms 22 for -16 and -33 technical orders and routes to the WS for review.

3.4.11. Ensures supervisory post-loads and maintenance inspections are performed.

3.4.12. Ensures approval of locally manufactured equipment (LME) if not included in tech data or the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL (<https://wmnet.eglin.af.mil/mmhe>) MXG/CC's will establish approval procedures for all weapons LME. All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-103, *Air Force Nuclear Safety Certification Program*.

3.4.12.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

3.4.12.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by

contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment (LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. **(EXCEPTION:** LME that is designed to or will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, etc.) will be coordinated through the ANG/LGMW for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE Pamphlet by sending approved drawings to the ANG/LGMW for evaluation/coordination, prior to the ANG/LGMW forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103.

3.4.12.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit that is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph 3.4.12.2. Stands and storage racks purchased through LRS must also comply with the above safety standards.

3.4.12.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained for all major MMHE/MHE items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

3.4.13. Ensures individual tool kits are set up for each load crew (as specified on the UCML/TTML; numbers include lead crews). Determines the number of loading tool kits required for load crews that support only test, evaluation, or training operations.

3.4.14. On TDYs or Deployments with durations of 30 days or more, WS personnel will be deployed (with WWM concurrence) to provide MPRL and recertification capability to deployed load crews. On TDYs where live munitions are to be fired/expended, regardless of length, the WWM will determine whether or not WS participation is required.

3.4.15. Ensures aircraft -6 armament system, AME, NIE inspections, TCTOs and aircraft functional checks (except phase/HPO) are accomplished as required to prevent overdues or over flight of equipment.

3.4.16. Tracks all assigned in-use AME by aircraft tail number and position installed, and/or storage location (may be tracked in the MIS, if the capability exists).

3.4.17. Ensures positive control/accountability/serviceability for suspension equipment accessories (cables, fittings, adapters, etc.).

3.4.18. Ensures normally installed equipment (NIE) locations are updated in the MIS.

3.4.19. Tracks F-16 acceleration monitor assemblies by serial number, showing aircraft tail number and installed position.

3.4.20. Ensures load crew certification records and automated products are sent with load crews to TDY location if loading tasks are to be performed. Obtain a signed copy of the Weapons Load Crew Management Program (WLCMP) or equivalent printout from WS.

3.4.21. Ensures personnel receive a documented supervisory review of and complete required prerequisite training before entering initial load crew training or performing flightline operations (e.g., cockpit familiarization, fire fighting, AGE, etc.).

3.4.22. Ensures on-equipment serial number inventory, AFTO Form 95 review and functional checks are performed on all AME and NIE installed as a result of transfer or acceptance inspection. Also perform inventory of applicable -21 authorizations.

3.4.23. Inspects weapons element CTKs, armament test and support equipment for serviceability. Schedules and tracks inspections to ensure 100% of CTKs, test, and support equipment will be checked over a one-year timeframe. Documents inspection results and uses for follow-up action and reference as necessary. Ensures inspection is documented on appropriate equipment form such as AFTO Form 244 or AF Form 2411.

3.4.24. Ensures appropriate follow-up actions are accomplished for all armament system malfunctions. Monitors actions taken by supporting agencies on dispensers, suspension equipment, training munitions, etc., which were involved with specific system malfunctions. Updates WWM monthly on weapons release reliability and gun fire rates along with corrective actions if required.

3.4.25. Monitors upgrade training and qualifications of assigned workcenter personnel.

3.4.26. Ensures sufficient computer systems are assigned to support network/modem interface with the WWM, WS, other Weapons Sections, Armament Systems Section, automated training systems and other agencies.

3.4.27. Provides the WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, critical armament testers, and support equipment by the first of each month.

3.4.28. Ensure requirements stated in section 18.18 in regards to Maintenance Recovery Teams (MRT) are adhered to.

3.5. Weapons Loading: The weapons loading supervisor is responsible to the weapons element supervisor for all loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. The loading supervisor coordinates maintenance priorities with the flightline expeditor and Production Supervisor. In addition to common element/workcenter supervisor responsibilities outlined in Chapter 2 of this instruction, the weapons loading supervisor:

3.5.1. Load and unload munitions and weapons in support of daily flying training and contingency operations. Certification and qualification requirements for these operations are specified in WS section of this instruction.

3.5.2. Install and remove armament related suspension equipment, launchers, adapters, etc., on assigned aircraft to support configuration requirements for daily and contingency operations.

3.5.3. Perform functional and stray voltage checks required for loading operations.

3.5.4. Provide assistance to the armament section when required.

3.5.5. Weapons Expediter, if utilized. The weapons expeditor is responsible to the weapons element/section supervisor for all armament systems maintenance and loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. If a weapons expeditor is not assigned the following duties will be performed by a weapons loading supervisor. A weapons loading supervisor may be assigned to assist in managing flightline operations. The expeditor coordinates maintenance priorities with the Production Supervisor.

3.5.5.1. Supervises/ actively monitors on-equipment armament systems maintenance.

3.5.5.2. Remains on the flightline when weapons loading/unloading (not to include task qualification) operations are being performed.

3.5.5.3. Tracks configuration of aircraft, suspension equipment, and weapons. Ensures 100 percent documented accountability of in-use AME/NIE, by location and status, whether installed or stored.

3.5.5.4. Informs the flightline expeditor and the Production Supervisor of all start and stop times, status changes, delays and extensions.

3.5.5.5. Tracks munitions expenditures as follows:

3.5.5.5.1. Fill out an AF Form 2434, **Munitions Configuration and Expenditure Document**, or locally produced form, on all aircraft configured and loaded to release or fire munitions. Record by serial number and location or position all armament related AME or support equipment from which munitions items are expended.

3.5.5.5.2. A reconciliation of expenditures is accomplished with the munitions section at the end of the flying day. After the reconciliation, copies of expenditure documents are distributed to the munitions element and, when required, the armament systems. The documentation action block is annotated when entries are made on item historical documents.

3.5.5.6. Coordinates with the MOC or munitions control for the delivery and pick-up of munitions items.

3.5.5.7. Coordinates accomplishment of all planned and unscheduled maintenance, and inspections with the Production Supervisor.

3.5.5.8. Monitors the safety of flightline weapons operations.

3.5.5.9. Supervises and assists load and maintenance crews during weapons release system fault isolation and troubleshooting.

3.5.5.10. Performs supervisory spot checks of post loads of explosives loaded aircraft and maintenance inspections using the following guidelines:

3.5.5.10.1. Post load inspections need include only a sampling of loaded aircraft and will be at least one aircraft per flying day. The inspection will be documented in the Weapons Load Crew Management Program (WLCMP) or equivalent or in the ANG Quality Assurance Database (QuAD) before the aircraft is considered "weapons ready". The post load does not take the place of the weapons load crew chief's "postloading" portion of the applicable 1X-XXX-33-1-2CL-X checklist.

3.5.5.10.2. The weapons expeditor, if used, will perform these post load inspections. If no expeditor is used, weapons supervisors will perform the inspections. LSC will train weapons supervisors and any weapons element 7-levels qualified to perform expeditor duties during their annual weapons academics class.

3.5.5.10.3. Any 2W171 eligible to perform expeditor duties may be trained to perform post load spot-checks. Units will determine these training requirements and do not require a special class or course code.

3.5.5.10.4. Trends from post load inspections should be forwarded to the LSC to help evaluate the effectiveness of their ongoing training efforts.

3.5.5.11. Initiates CANN documentation, when authorized, or when AME and NIE with inspection requirements aligned to a specific aircraft phase and specific accrued flying hour intervals (e.g. pylons, bomb racks, launchers, and gun components), are removed and installed on a different aircraft. Use caution when installing items on aircraft with less phase time accrued than the item itself to avoid overfly of AME or NIE -6 inspection requirements. Inform PS&D when actions affect the aircraft inspection schedule.

3.5.5.12. Maintains a separate AF Form 2430, **Specialist Dispatch Control Log**, or local form, for each shift. Ensures all required documentation is complete and accurate. Transcribe any actions not complied with or cancelled to the next shift's AF Form 2430.

3.6. Load Crew Chief. The load crew chief is responsible to the weapons element/workcenter supervisor for armament systems maintenance and loading of assigned aircraft. Load crew chiefs are normally NCOs with AFSC 2W151. Senior airmen may perform load crew chief duties when unit-manning status dictates. The weapons load crew chief:

3.6.1. Is responsible for and in control of all actions concerning the aircraft during loading and unloading (except when a CSS is required). No one is authorized access to the aircraft without load crew chief approval. The load crew chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which would jeopardize safety, hamper loading operations or violate tech data. Access to the cockpit and power on the aircraft by other than the load crew during loading operations is prohibited, unless approved by the load crew chief.

3.6.2. Supervises the loading and unloading of only one aircraft at a time.

3.6.3. Controls and ensures the number of personnel in the area during explosives handling operations are kept to a minimum.

3.6.4. May load in any position

3.6.5. Monitors and ensures proper documentation of qualifications, proficiency, on-the-job, and upgrade training of crewmembers. Takes the necessary action to assist or provide any training opportunities.

3.6.6. Enforces compliance with and ensures all loading and maintenance operations are performed in accordance with established tech data and checklists.

3.7. Armament Systems Section: Armament Systems Sections are not normally formed in rescue units. The armament section performs on/off-equipment maintenance for assigned aircraft armament systems, guns, pylons, racks, launchers, and adapters. The section stores, maintains, and accounts for all alternate mission equipment (AME), tools, stocks and equipment assigned to the element. Gun services and weapons release supervisors may be assigned to support management of the armament shop. An armament shop supervisor may be assigned to assist in managing the gun and weapons release shops. In addition to common element/workcenter supervisors responsibilities outlined in Chapter 2 of this instruction, the gun, weapons release, and/or armament supervisors:

3.7.1. Install and remove all armament AME and NIE to facilitate other maintenance (FOM) or for repair action, to include acceptance and transfer inspections.

3.7.2. Perform aircraft troubleshooting and repair actions.

- 3.7.3. Perform aircraft armament systems functional checks and dash-6 inspection requirements on in-use AME and NIE.
- 3.7.4. Boresight aircraft guns.
- 3.7.5. Perform armament systems pre-flight, through flight and BPO inspections.
- 3.7.6. Perform on-equipment TCTOs and weapons time change items.
- 3.7.7. Maintain qualification on designated weapons related qualification tasks for the unit
- 3.7.8. Maintenance personnel may be certified as load crewmembers at the discretion of the weapons element/workcenter supervisor.
- 3.7.9. Assists the wing weapons manager in recommending distribution of wing 2W1X1 personnel to satisfy on- and off-equipment weapons release and gun system maintenance.
- 3.7.10. Advises maintenance supervision and the wing weapons manager regarding factors which affect armament systems, gun maintenance, and other related programs.
- 3.7.11. Establishes and monitors gun room security and explosive licenses if required.
- 3.7.12. Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103.
- 3.7.13. If applicable supports WRM rack, adapter, pylon, launcher and gun maintenance requirements IAW AFI 25-101, *War Reserve Material (WRM) Program Guidance and Procedures*. Ensure all WRM racks, adapters, launchers, and guns are serviceable to meet unit taskings.
- 3.7.14. Provides the WWM monthly status on authorized/on-hand quantities and serviceability of AME/WRM, critical armament testers, and support equipment.
- 3.7.15. Establishes a SPRAM account to track F-16 “ruggedized” nuclear remote interface units (RNRIU) and dummy test rounds.
- 3.7.16. Develops and implements a recognition program for assigned personnel.
- 3.7.17. Ensures compliance with hazardous material and hazardous waste management and air emissions record keeping as required for environmental compliance IAW applicable environmental requirements and guidance.
- 3.7.18. Ensures sufficient computer systems are assigned to support network and modem interface with the WWM, WS, Weapons Sections, automated training systems and other agencies.
- 3.7.19. Identify to LRS, by National Stock Number (NSN), all aircraft armament systems components that require acceptance inspections.
- 3.7.20. In coordination with PS&D, requisitions parts to satisfy time change requirements for aircraft armament or gun system components not identified in aircraft dash-6 T.O.s.
- 3.7.21. Maintains the MIS database for installed guns, gun systems, and gun component time change items or inspection data, based on round count limits listed in the dash-6 T.O., including updating rounds from the AF Form 2434 or locally developed form.
- 3.7.22. Advises the element chief of any factors limiting the maintenance capability.

- 3.7.23. Develops procedures, in coordination with the weapons element/section supervisors and wing weapons manager, on the governing accountability and control of AME.
- 3.7.24. Unpacks and packs assigned AME in storage.
- 3.7.25. Develops and implements a program for documenting issues and receipts of in-use AME.
- 3.7.26. Manages the supply function for the section IAW AFMAN 23-110.
- 3.7.27. Performs user calibration and maintenance on element TMDE.
- 3.7.28. Coordinates with TMDE to ensure calibration requirements are met.
- 3.7.29. Maintains the R-14 master ID listing.
- 3.7.30. Maintains CTKs, tool storage area and test equipment IAW Chapter 13.
- 3.7.31. Ensures approval of locally manufactured equipment (LME) if not included in tech data or the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL. MXG/CC's will establish approval procedures for all weapons LME. All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-103.
- 3.7.32. Maintains the element technical order and publication files.
- 3.7.33. Maintains supply management documents (i.e. D04, D18, D19 and Q13).
- 3.7.34. Manages consumables.
- 3.7.35. Manages residual and bench stock.

3.8. Weapons Loading/Armament Shop. Weapons loading or armament personnel may be assigned any/all duties specified below.

- 3.8.1. Load and unload munitions and weapons in support of daily flying training and contingency operations. Certification and qualification requirements for these operations are specified in WS section of this instruction.
- 3.8.2. Install and remove armament related suspension equipment, launchers, adapters, etc., on assigned aircraft to support configuration requirements for daily and contingency operations.
- 3.8.3. Perform functional and stray voltage checks required for loading operations.
- 3.8.4. Provide assistance to the armament section when required.
- 3.8.5. Install and remove all armament AME and NIE to facilitate other maintenance (FOM) or for repair action, to include acceptance and transfer inspections.
- 3.8.6. Perform aircraft troubleshooting and repair actions.
- 3.8.7. Perform aircraft armament systems functional checks and dash-6 inspection requirements on in-use AME and NIE.
- 3.8.8. Boresight aircraft guns.
- 3.8.9. Perform armament systems pre-flight, thru flight and BPO inspections.
- 3.8.10. Perform on-equipment TCTOs and weapons time change items.

- 3.8.11. Maintain qualification on designated weapons related qualification tasks for the unit
 - 3.8.12. Maintenance personnel may be certified as load crewmembers at the discretion of the weapons element/section supervisor.
 - 3.8.13. Schedules and performs all inspections, TCTOs, time changes, maintenance and repair actions for aircraft armament systems suspension and release components and AME, including AME items preloaded with munitions for contingencies.
 - 3.8.14. Performs the off-equipment portion of phase inspections.
 - 3.8.15. Maintains WRM assets (if applicable).
 - 3.8.16. Maintains equipment historical records (AFTO Forms 95) for AME, aircraft guns and weapons system NIE, if decentralized. If an automated maintenance management system is available, it will be used for equipment historical records. Backup files will be maintained for those portions of historical records that are automated.
 - 3.8.17. Coordinates with the PS&D for equipment requiring in-shop inspections. When possible, calendar NIE inspections are scheduled concurrent with nearest aircraft hourly inspection within the calendar interval. However, do not allow NIE/AME scheduled inspections to become overdue (6 T.O.). Includes schedules in both the monthly and weekly maintenance plan/flying schedule.
 - 3.8.18. Performs off-equipment acceptance and transfer inspections on aircraft, to include NIE and AME. Inspections include:
 - 3.8.18.1. Parts integrity inspection.
 - 3.8.18.2. Complete electrical and mechanical check to include associated cables.
 - 3.8.18.3. Updating/initiating historical records for each item.
 - 3.8.19. Performs the off-equipment portions of aircraft inspections that pertain to armament systems. Depending on Wing Weapons Manager input, the element may perform certain on-equipment tasks.
 - 3.8.20. Maintains and inspects ammunition loading assemblies and systems. The munitions element maintains the chassis portion.
 - 3.8.21. Performs the armament systems portion of aircraft inspections as applicable.
- 3.9. Rescue Units:** The rescue unit Weapons Section is a composite of both the flightline weapons section and armament section. Element Chiefs need only comply with applicable paragraphs and guidance below the WWM and armament section chapters that are applicable to rescue unit organizational structure, responsibilities and functions.
- 3.9.1. Personnel are formed into maintenance teams and are qualified to perform on-off equipment maintenance and do not normally load ammunition on the aircraft. This is normally done by the flight engineer or aerial gunner.
 - 3.9.2. Other basic responsibilities of the rescue unit weapons section are as follows:
 - 3.9.2.1. Perform both -6 and commodity tech order inspection requirements on associated guns and equipment.
 - 3.9.2.2. Perform applicable gun system functional checks.

3.9.2.3. Perform chaff/flare loading as required.

3.9.2.4. Maintain weapons/munitions accounts as required.

3.10. Lead Technician (Lead Tech) Responsibilities. Units may choose to identify Lead Technicians. A Lead Tech is the element AFSC subject matter expert and represents all personnel in that AFSC. Their use is especially important where multiple AFSCs are integrated into sections. Units supporting different aircraft types may find it beneficial to identify Lead Tech for each MDS. Serving as a Lead Tech is considered an additional duty, not a duty title or full-time job. Lead Techs:

3.10.1. Work with the Flight Chief /Element/workcenter supervisors to ensure personnel in the Lead Tech's AFSC receive proficiency training.

3.10.2. Serve as the Flight Chief's technical advisor for matters relating to their AFSC.

3.10.3. Work with the Flight Chief/Element/workcenter supervisor to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements.

3.10.4. Monitor repair processes to ensure safe, effective repair of unit assets.

3.10.5. Evaluate trends and indicators of troubleshooting effectiveness and 2LM efficiency. Unit RTOK "Re-test OK" components (RTOK) are costly and often indicate opportunities to improve troubleshooting or repair processes. If your unit has RTOK data available, review the data monthly for trends. Simple process improvements may result from emphasis on RTOK costs, more in-depth troubleshooting, or (circumstances permitting) reinstalling original line replaceable units (LRUs) when replacement LRUs drawn from supply don't fix the problem.

3.11. Sortie Support Element Maintenance Supervision Responsibilities. Common responsibilities for maintenance supervision are outlined in Chapter 2 of this instruction. The maintenance supervision is responsible to the Squadron/flight commander for the management, supervision and training of assigned personnel. The element may include the following sections/functions to support flightline maintenance and generation activities; Inspections, support (CTKs/special tools, test equipment, T.O.s, bench stock), Dash 21 equipment, alternate mission equipment, vehicles, mobility equipment and dedicated supply support to support the production effort. Supply support procedures in this section do not apply to aircraft supported by COMBS.

3.11.1. Aircraft Inspection Section. The inspection section performs aircraft (phase, periodic, or isochronal) inspections.

3.11.1.1. The inspection section performs major and minor isochronal inspections, special inspections, periodic inspections, letter check inspection, and phase inspections. It may also perform pre-flights, basic post-flights, hourly post-flights, thru-flights, TCTOs, home station checks, and refurbs. Prepares the aircraft for functional check flight (FCF), if required. **NOTE:** Units maintaining multiple weapon systems, the inspection section may be divided into separate elements for each type aircraft maintained. In addition to the general responsibilities in Chapter 2, the inspection section supervisor will ensure:

3.11.1.1.1. Assigned non-powered AGE (NPA) such as dock stands are maintained.

3.11.1.1.2. Dock supervisors and coordinators are appointed as required; inspection schedules are reviewed; and dock teams are available to meet inspection needs.

3.11.1.1.3. Specialists are controlled by the Inspection Section when they are performing maintenance in the docks. When specialist support is required, coordinates with MOC and/or Production Supervisor. At MXG/CC Option, full time specialists may be assigned to the Inspection Section.

3.11.1.1.4. Standardized inspection flow plan is developed to aid in managing the progress of the inspection, and to control dock personnel and support specialists. Units may use an MIS instead of the inspection flow plan to request specialist support. Ensure flow plan data remains current with -6 T.O. requirements.

3.11.1.1.5. Status board or MIS display is used to track in-progress inspections and schedule inputs from the weekly flying and maintenance schedule. Show the following information:

3.11.1.1.5.1. Aircraft type.

3.11.1.1.5.2. Aircraft serial number.

3.11.1.1.5.3. Inspection type and when due (sequence).

3.11.1.1.5.4. Scheduled in (date and time).

3.11.1.1.5.5. Actual start (date and time).

3.11.1.1.5.6. Scheduled out (date and time).

3.11.1.1.5.7. Aircraft crew chief and assistant crew chief names and duty phone.

3.11.1.1.5.8. Remarks (status of aircraft, delays, possible MICAP conditions, etc.).

3.11.1.1.5.9. Safety/Danger Considerations (power/hydraulic applications, stress panels removed, aircraft on jacks, weight and balance, etc.)

3.11.1.1.6. Upon inspection completion, the dock chief complies with post dock review procedures.

3.11.1.1.7. All discrepancies discovered during the inspection are documented IAW T.O. 00-20-1. Approved, locally developed discrepancy sheets may be used to identify and track discrepancies during the inspection, however, all open discrepancies will be transferred to applicable AFTO Form 781s prior to post-dock.

3.11.1.1.8. T.O.s and inspection work cards are available and work unit code (WUC) manuals and checklists are current and properly maintained. In coordination with the PS&D function, the inspection function will ensure changes to inspection work cards are updated on the Job Standard Master Listing (JML).

3.11.1.1.9. Personnel are trained to operate industrial-type equipment, hoists, hangar doors, and AGE necessary to do their job.

3.11.1.1.10. Inspection area contains MIS terminals, AGE, work stands, supplies, and equipment needed to inspect, repair, lubricate, or service are available and ready for use.

3.11.1.1.11. Needed parts for the aircraft are ordered and inform the MOC and owning agency of all parts backordered UJC 1A or JA (MICAP reportable). **NOTE:** The use of AF Form 2413, **Supply Control Log**, is optional when MIS is available.

3.11.1.1.12. PS&D functions have a record of inspection documents when the inspection is completed.

3.11.1.1.13. Components are tagged with an AFTO Form 350, **Reparable Item Processing Tag**, when they are removed from the aircraft. As a minimum, include the aircraft ID, component position, and serial number (if serially controlled). To prevent invalidating historical records, ensure serially controlled components are reinstalled on the same aircraft and position from which they were removed. (**EXCEPTION:** If it is absolutely necessary to install serially controlled components in a different position, notify the documentation function for records update.) When it is not practical to tag items such as access panels, an AFTO Form 350 or other suitable means of identification may be used if the items are identified and kept together in a storage area and/or rack. The applicable storage area and/or rack must have the aircraft serial number clearly displayed.

3.11.2. Support Section, when assigned. Organize a support section in each sortie support flight. 2W1X1 personnel may be required to maintain task qualification/certification. Refer to Chapter 8 of this instruction and AFMAN 23-110 for guidance on supply procedures. Refer to Chapter 13 of this instruction for tool control guidance. The support section:

3.11.2.1. Maintains technical orders (T.O. 00-5-1 and T.O. 00-5-2).

3.11.2.2. Maintains bench and operating stocks. See Chapter 8 for detailed procedures.

3.11.2.3. Maintains AME, MSPE, and -21 equipment (AFI 21-103).

3.11.2.4. Accomplishes squadron deployment processes (i.e. equipment/supply preparation/de-preparation).

3.11.2.5. Maintains hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

3.11.2.6. Control and maintain test, measurement and diagnostic equipment (TMDE) IAW TO 33-1-27, *Logistics Support of precision measurement equipment*.

3.11.2.6.1 User maintenance for TMDE assigned to support sections must be limited to those tasks within the squadron's capability.

3.11.2.6.2. Comply with TO 33K-1-100, *TMDE Calibration Interval Notes Maintenance Data Collection Codes and Cal Measurement Summaries Calibration Procedures, Calibration Interval and AF Metrology and Calibration Program*, and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section. ?

3.11.3. Procedures for fuels billing and accounting are in AFI 23-202, and 00-20-1. ?

3.12. Not used.

3.13. The Transient Alert (T/A) Flight (where authorized) is responsible for recovering, servicing, inspecting, maintaining, and launching transient aircraft. Procedures in this section apply to en route, military, contract, and civil service transient maintenance functions. Additionally, T/A:

3.13.1. Ensures deceleration chutes are retrieved and taken to the Survival Equipment Section. When more manning is needed to support tenant units, resolve it through an agreement using AFI 25-201, *Support Agreement Procedures*.

3.13.2. Complies with provisions in T.O. 00-20-1 with regard to maintenance and

reimbursement documentation. AF Form 726, **Transient Aircraft Service Record**, may be used for documenting maintenance servicing requirements and billing information.

3.13.3. Promptly informs the MOC of all status changes on transient aircraft.

3.13.4. Maintains and uses applicable technical publications. Local maintenance leaders determine the scope and depth of technical publications maintained.

3.13.5. Ensures personnel authorized to run engines are qualified according to applicable Air Force and command directives. When there are no qualified maintenance personnel assigned to the T/A Flight, qualified aircrew members accomplish necessary engine runs for maintenance.

3.13.6. Maintains hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance

Chapter 4

MAINTENANCE SQUADRON (MXS)

4.1. General. The Maintenance Squadron (MXS) provides support to the AMXS's sortie production and the depth to sustain maintenance effectiveness. The MXS is divided into two flights, the Component Maintenance Flight and the Equipment Maintenance Flight. The Component Maintenance Flight performs both on and off equipment maintenance on assigned aircraft and normally consists of the Avionics Element, the Propulsion Element, and the Accessory Element. The Equipment Maintenance Flight performs both on and off equipment maintenance on assigned aircraft and normally consists of the Fabrication Element, AGE Element, and Munitions Element (when assigned). The extent of CUT tasking will be locally determined. MDS peculiarities will determine exceptions to the general organization of the MXS. **NOTE:** The terms and responsibilities associated with the sections identified in this chapter may differ or may not be applicable to all units based on unit size, mission, and MDS assigned.

4.2. Squadron/Flight Commander Responsibilities. The Squadron/flight commander performs command functions outlined by public law, or directives common to all ANG Squadron/flight commanders. They are responsible to the MXG/CC for overall squadron management. General responsibilities are outlined in Chapter 2.

4.3. Maintenance Supervision Responsibilities. The MXS Maintenance Supervision is responsible to the Squadron/flight commander for maintenance production. The Maintenance Supervision manages the resources to accomplish the workload. In addition to general responsibilities in Chapter 2, the Maintenance Supervision:

- 4.3.1. Provides local manufacture capability and ensures control of the fabrication process.
- 4.3.2. When applicable ensures MXS personnel use the JEDMICS and Engineering Technical Service in coordination with QA personnel to get information and specifications when the information in technical orders does not provide enough detail.
- 4.3.3. Establish a radiation protection program IAW AFOSH Standard 48-9, when applicable.

4.4. Not used.

4.5. Specialist.

4.5.1. In addition to the general responsibilities in Chapter 2, the element/workcenter supervisor ensures:

4.5.1.1. In coordination with MOC, coordinates with the MXS Production Supervisor on maintenance priorities before dispatching personnel.

4.5.1.2. TMDE, tools and technical data are available to the technician either through the section or supported activity resources.

4.5.1.3. Specialists order parts using MIS.

4.5.1.4. Upon dispatch, technicians are responsible to the Pro Super, expediter, element/workcenter supervisor, or dock chief to:

4.5.1.4.1. Report in before beginning the job.

4.5.1.4.2. Review aircraft forms prior to beginning maintenance on an aircraft.

4.5.1.4.3. Reporting job completions, stop times, ETIC slippage, and significant problems.

4.5.1.4.4. Providing all document numbers for back ordered parts.

4.5.1.4.5. Verifying the status of the aircraft or equipment.

4.5.1.4.6. Ensure MIS is completed and aircraft forms are accurate and completed in a timely manner.

4.6. Accessory Element. This activity performs on-and-off equipment maintenance of aircraft systems and associated support equipment. The element may be organized into the following shops: Pneudraulic, Electro-Environmental, Fuel Systems, Egress, and Repair and Reclamation/Wheel and Tire. The extent of CUT tasking will be determined locally.

4.6.1. Accessory Element Supervisor. In addition to the common responsibilities in Chapter 2, the Accessory Element Supervisor:

4.6.1.1. Ensures an effective and valid egress training program is established IAW AFI 21-112, *Aircrew Egress Systems Maintenance*, and ANG directives, and monitors program effectiveness.

4.6.1.2. Ensures compliance with crash recovery program responsibilities.

4.6.1.3. Ensures explosives are controlled and stored in approved storage areas.

4.6.2. The Electrical-Environmental Section.

4.6.2.1. Performs on- and off-equipment maintenance on the following aircraft systems and components: liquid nitrogen; liquid and gaseous oxygen, air conditioning, pressurization, fire extinguisher/suppression (including explosive squibs), vacuum; anti-icing, bleed air, and combustion heater and on-board nitrogen-generating systems.

4.6.2.2. Performs maintenance on aircraft electrical and environmental systems.

4.6.2.3. If tasked provides off-equipment support for flightline support equipment electrical components.

4.6.2.4. Performs repairs on liquid and gaseous oxygen and nitrogen servicing units/carts, including liquid nitrogen tanks (exclusive of the basic trailer or chassis and user-type maintenance). **NOTE:** Responsibility for scheduling inspections, ordering parts, and reporting status of servicing carts will be determined locally.

4.6.2.5. Performs authorized local manufacture, repair, overhaul, testing, modification, and inspection of aircraft and support equipment electrical components, wiring harnesses, batteries, and charging units.

4.6.2.6. Ensures battery disposal procedures meet environmental standards and are controlled for accountability purposes.

4.6.2.7. Performs off-equipment maintenance for aircraft and aircrew CO2 cylinders.

4.6.2.8. Performs off equipment maintenance on type MA-1 portable breathing oxygen cylinders (portable walk around bottles) and regulators IAW applicable aircraft/equipment technical orders, to include removing and replacing the regulator and purging the bottle. Ownership and storage of these cylinders will remain with the appropriate support section.

4.6.2.9. Performs hot purge and pump down on aircraft LN2 and LOX servicing carts.

4.6.3. Egress Section.

4.6.3.1. The egress section maintains aircraft egress systems, components, and trainers.

4.6.3.2. Maintains aircraft ejection seats, extraction and escape systems, egress components of jettisonable canopies, explosive components of escape hatches and doors, and egress trainers.

4.6.3.3. Requests assistance from the explosive ordnance disposal (EOD) unit when egress explosive devices are damaged or suspected to be unsafe.

4.6.3.4. Provides storage for egress explosive items removed during maintenance.

4.6.3.5. Establishes the egress training program to include a master training plan, explosive safety, life support certification, and MIS time change documentation qualification. Review this program semiannually.

4.6.3.6. Actively promotes the accuracy of the egress TCI database in the MIS and ensures automated data products are updated anytime an egress item is replaced to ensure the annual TCI forecast is correct. Do not maintain a separate database to manage the egress TCI program.

4.6.3.6.1. Inputs all egress TCI data entries in the MIS database to include clearing the suspense when delegated in writing by the Plans and Scheduling section. If egress clears suspenses, a snapshot of the completed job must be forwarded to PS&D personnel.

4.6.3.6.2. Provide component background information to PS&D, to include a list of all components having multiple part numbers with a different service life. Validate and verify all MIS egress data for each aircraft, and meet with PS&D annually, as a minimum, to review each aircraft's data.

4.6.3.6.3. Coordinates with MDSA section to establish a monthly requirement for MIS products to help manage egress TCIs. Automated products may be downloaded into computer media format.

4.6.3.6.4. Ensures the section "safes" aircraft according to 00-80-series and weapon system T.O.s.

4.6.3.7. The egress section will coordinate with the WG/CC to ensure all permanently decommissioned static display aircraft are made safe and explosive devices removed, condemned, or turned in to LRS (AFMAN 23-110).

4.6.3.8. Ensures all assigned ground instructional training aircraft (GITA) are made permanently safe.

4.6.3.9. Egress Section is responsible for overall management and control of the egress configuration management. (CAMS/REMIS corrections).

4.6.4. Fuel Systems Section.

4.6.4.1. Repairs, functionally checks, and inspects aircraft fuel systems, fuel tanks, hydrazine systems, and related components. In addition to the common responsibilities outlined in Chapter 2, the Fuels Element/workcenter supervisor:

4.6.4.1.1. Ensures assigned personnel receive periodic physical examinations as established by the base medical service. Occupational physicals will be tracked in MIS.

4.6.4.1.2. Sets up controls to prevent unauthorized entry into fuel cell and hydrazine repair areas.

4.6.4.1.3. Provides hydrazine safety training, as applicable.

4.6.4.1.4. Provides safety training to all personnel who enter aircraft fuel tanks or open fuel tank areas to perform maintenance or assist.

4.6.4.1.5. When required, ensures hydrazine response teams are formed with only team members/supervisors that hold a fuels maintenance AFSC and integrate them into crash recovery operations and local in-flight emergency procedural checklists. The MXG/CC may appoint team members from other AFSCs as long as the person is task certified. These individuals will be listed on a SCR. Additional information on hydrazine hazards and management is found in aircraft T.O.s, T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding and Bonding*, MDS-specific T.O.s, and AFOSH STD 48-8, *Controlling Exposure to Hazardous Material*.

4.6.4.1.6. Performs safety inspection on facilities; ensures open tank repair areas, and equipment used for open fuel tank and hydrazine maintenance meet aircraft-specific T.O. and AFOSH STD 48-8.

4.6.4.1.7. Manages and documents non-grounding fuel leaks according to T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, and applicable aircraft T.O.s. Coordinates with PS&D to schedule aircraft with non-grounding fuel leaks through the fuel system repair facility to prevent further deterioration of aircraft condition.

4.6.4.1.8. The following general procedures apply to AME fuel tanks.

4.6.4.1.8.1. Fuels section maintains a local maintenance area for AME fuel tanks repairs. After maintenance, the owning unit will reclaim CFTs and WBTs. The fuels section:

4.6.4.1.8.1.1. Performs all maintenance and inspections on AME fuel tanks.

4.6.4.1.8.1.2. Ensures all maintenance actions are recorded in MIS and Significant History Data Record (SHDR) for external tanks.

4.6.4.1.8.1.3. Purges and preserves external tanks that require ground shipment.

4.6.4.1.8.1.4. Meets as required with PS&D to schedule external fuel tanks for inspection or TCTOs.

4.6.4.1.8.2. The following applies to war reserve material (WRM) external fuel tanks:

4.6.4.1.8.2.1. Fuels section performs all maintenance and inspections on WRM fuel tanks. The appropriate system specialist maintains release systems components requiring repair. After maintenance, notify LRS to pick up the tank.

4.6.4.1.8.2.2. Ensures that all maintenance actions are recorded in MIS.

4.6.4.1.8.2.3. Purges and preserves fuel tanks for storage and shipment. LRS is responsible for the storage, delivery, and shipment of fuel tanks.

4.6.4.1.8.2.4. Provides equipment, tools, and bench stocks for WRM tank build-up (TBU) training.

4.6.4.1.8.2.5. Meets quarterly with the MXG/CC WRMO/WRM NCO and Maintenance training to identify personnel for WRM TBU teams, establishes TBU training classes for initial and

refresher training, and reviews WRM TBU mission capability (MISCAP) statement as it applies to the wing's tasking.

4.6.4.1.8.2.6. Meets quarterly with MXG/CC WRMO/WRMNCO and LRS representatives to review inspection criteria for stored WRM tanks, schedule tank inspections and maintenance, and report on monthly walk-through of WRM if applicable.

4.6.4.1.9. Establishes notification procedures to inform the base fire department when open fuel tank repairs are in progress and when maintenance is complete.

4.6.4.1.10. Ensures compliance with a Confined Space Entry Program IAW T.O. 1-1-3 and AFOSH 91-25.

4.6.4.1.11. Ensures compliance with a respiratory protection program that covers use, storage, cleaning, and inspection of respirators, hoses, and associated support equipment. Training is required annually IAW AFOSH 48-137.

4.6.4.1.12. Maintains in-flight refueling receptacle system.

4.6.4.1.13. Contact owning organizations when fuel system maintenance is complete on AME fuel tanks.

4.6.5. Hydraulics Section. This section maintains on and off-equipment pneumatic, hydraulic, and pneudraulic systems and components (except environmental and egress systems) and provides maintenance support for SE and test equipment. Additionally, the section maintains hydraulic test stands, pumping units, and associated components. In addition to the common element/workcenter supervisor responsibilities outlined in Chapter 2, the Hydraulics Element/workcenter supervisor ensures the following services are provided:

4.6.5.1. Local manufacture and testing of flexible hose assemblies and testing of rigid tubing. At MXG/CC option the local manufacture and testing of rigid tubing may be moved to another workcenter.

4.6.5.2. Pneudraulic maintenance on munitions maintenance loading and handling equipment that is beyond Munitions Element repair capabilities.

4.6.5.3. When required, establishes an aerial refueling receptacle, boom, or drogue system maintenance capability to maintain peculiar electrical, hydraulic, and mechanical components.

4.6.5.4. Repair, overhaul, and bench check of flight control, landing gear, and hydraulic power system components such as brakes, struts, accumulators, reservoirs, and actuators.

4.6.5.5. Reviews Air Logistics Center Drawing IAW T.O. 4S-1-182, to ensure cleaners used on landing gear components are approved.

4.6.6. Repair and Reclamation (R&R), at local option, the MXG/CC may reassign responsibilities to other shops. In addition to the common responsibilities outlined in Chapter 2:

4.6.6.1. Removes, replaces, and rigs flight control surfaces/systems on primary assigned aircraft.

4.6.6.2. Troubleshoot, rig, and replace landing gears, actuated doors, canopies and associated equipment requiring component maintenance beyond the capability of other activities.

4.6.6.3. When directed by the MXG/CC, establish specialized maintenance rig teams to accomplish flight control, canopy, landing gear, door systems, and other systems rigging. These teams will consist of highly qualified personnel trained on each particular system. Each team

may participate in flight crew debriefing, troubleshooting, repairing, or replacing components as necessary. When dispatched as a team to troubleshoot CND, repeat/recurring, and FCF discrepancies, initiates an AFTO Form 781A and automated MIS entries for all items inspected, tested, removed, or replaced. Review corrective actions prior to final release of the aircraft.

4.6.6.4. If required, removes, installs, and repairs towed-targets and airborne reel pods.

4.6.6.5. Performs CDDAR responsibilities, and maintains program assets when assigned. Accomplish and document inspections of crash recovery equipment IAW applicable directives, or at least semiannually if no directive is available. Crash recovery technical interchange meeting (TIM) attendance is recommended.

4.6.7. Wheel and Tire (W&T) Section. The wheel and tire shop maintains aircraft wheels and tires. If a supply point for built-up work is set up in the shop, DIFM processing procedures are used. The supervisor sends issue and turn-in documents to the repair cycle support unit. In addition to the common element/workcenter supervisor responsibilities outlined in Chapter 2:

4.6.7.1. Manages build-up, repair, test, and storage of wheel and tire components.

4.6.7.2. Provides the capability to degrease wheel components and disassembly for NDI inspection IAW T.O. 4W-1-61, *Maintenance Instruction All Types Aircraft Wheels*, prior to processing through corrosion and the NDI laboratory.

4.6.7.3. Cleans, inspects, and properly stores wheel bearings.

4.6.7.3.1. Units will ensure positive procedures are in place to prevent co-mingling of bearings.

4.6.7.4. Inspects and maintains safety equipment, such as wheel cages.

4.7. Aerospace Ground Equipment (AGE) Element.

4.7.1. General. The AGE element provides powered and non-powered AGE (NPA) as defined in T.O. 00-20-1 to support the wing's mission. The MXG/CC may assign the responsibilities of nonpowered AGE to other workcenters. The element:

4.7.1.1. Maintains AGE in direct support of sortie production and back shop maintenance activities and is listed in the respective MDS Allowance Standards (AS).

4.7.1.2. Picks up, services, delivers, repairs, modifies, and inspects assigned AGE with the exception of non-powered munitions materiel handling equipment (MMHE), propulsion support equipment (SE), vehicle SE, and avionics SE. The MXG/CC has the option to relieve the AGE element from pickup and delivery of powered and nonpowered AGE.

4.7.1.3. Performs chassis, enclosure, and trailer maintenance on gaseous and cryogenic servicing units.

4.7.1.4. Manages all support equipment maintenance and inspection scheduling activities for AGE maintained by the element. To the fullest extent possible, place the equipment on the flight support equipment account.

4.7.1.5. Will be structured to most effectively utilize manpower and resources. May be organized as a consolidated maintenance unit using the Repair, Inspection, and Servicing sections or may be broken into teams for concentrated support efforts.

4.7.1.6. Enforce the proper use of approved cleaning compounds IAW T.O. 35-1-3, T.O. 35-1-12 and Qualified Products Listings (QPL).

4.7.1.7. Maintains AGE equipment and usage records as required for environmental compliance IAW AFI 32-7041 and applicable federal, state, DoD, AF, ANG, installation, and local requirements and guidance.

4.7.1.8. Maintains all assigned F-2 type trailers. Trailers placed in-use receive pre and post-use serviceability inspections. Develops periodic inspection requirements (maximum interval of 18 months) for trailers in storage to include:

4.7.1.8.1. Corrosion inspection and preservation treatment.

4.7.1.8.2. Tire inflation check.

4.7.1.8.3. Wheel bearing and chassis lubrication.

4.7.2. AGE Element/Workcenter Supervisor Responsibilities. In addition to the general responsibilities in Chapter 2, the AGE Element/Workcenter Supervisor:

4.7.2.1. Coordinates annually with applicable maintenance supervisions to identify types and minimum quantities of mission essential level (MEL) AGE (powered and NPA). The MXG/CC will be the final approval authority for the MEL.

4.7.2.2. Ensures mission essential AGE status is tracked daily using MIS, AF Form 2431, **Aerospace Ground Equipment Status**, or locally developed electronic product. Status will be provided to the MOC when it falls below MEL. **NOTE:** When a local product is used it must include, as a minimum, the same information found on the AF Form 2431.

4.7.2.3. Establish a field numbering system and maintain IAW T.O. 35-1-3, on assigned AGE.

4.7.2.4. Ensures the MIS is used for equipment scheduling to the maximum extent possible. The documentation function if decentralized to the flight is performed by the scheduler.

4.7.2.5. Controls fuel dispensed from issue tanks IAW AFMAN 23-110, and AFI 23-204, *Organizational Fuel Tanks*.

4.7.2.6. Ensures the uniform repair and replacement criteria program is implemented IAW T.O. 00-25-240 and T.O. 35-1-25.

4.7.2.7. Reviews all Dull Sword reports for MMHE listed in T.O. 00-110N-16, *USAF Nuclear Certified Equipment and Software*, that are maintained by the AGE.

4.7.2.8. Coordinates welding requirements with the Fabrication element supervisors. For AGE welding requirements not covered by end item technical orders, both element/workcenter supervisors will determine the economy of repair action. Safety determination is made by the Fabrication element supervisors. The Fabrication element supervisors ensure the AGE material requiring repair meets general welding guidelines IAW T.O. 34W4-1-5, *Operator Manual-Welding Theory and Application*.

4.7.2.9. Approves and controls AGE cannibalization. The AGE Element/Workcenter Supervisor sets up procedures for AGE support section to initiate cannibalization work orders.

4.7.2.10. In conjunction with maintenance training, establishes and monitors the AGE operator training program.

4.7.2.11. Coordinates with structural maintenance if applicable to establish an AGE corrosion control prevention program.

- 4.7.2.12. If tasked, establish written procedures for supporting equipment and personnel when there is a need to provide local support activities at a down-range location or satellite base.
- 4.7.2.13. Ensures equipment is prepared for storage or shipment according to T.O. 35-1-4, Processing and Inspection of Support Equipment for Storage and Shipment, and applicable end item T.O.s.
- 4.7.2.14. Ensures equipment is prepared to meet mobility taskings.
- 4.7.2.15. Provides annual equipment listings to the ANG/LGMM manager by the last duty day of February. Listing includes all AS driven AGE maintained by the element (powered and non-powered) and should include all due-out information.
- 4.7.2.16. Ensures effective training programs are instituted and personnel are rotated, as necessary, to facilitate training and currency in all areas.
- 4.7.2.17. Develop a training program to qualify personnel on all aspects of AGE maintenance.
- 4.7.2.18. Monitor qualification training and documentation of training records.
- 4.7.2.19. Coordinate with maintenance supervision for daily AGE requirements.
- 4.7.2.20. Ensures all equipment status and ETIC changes are updated in the MIS.
- 4.7.2.21. Ensures shop equipment is inspected and annotated on the AF Form 2411, **Inspection Document** or AFTO Form 244.
- 4.7.2.22. Ensures all AGE scheduled maintenance is planned and scheduled. Prepares an AGE maintenance plan (unless AFSM 21-573, Vol 2 scheduling procedures are used), and maintains a current equipment scheduling report for all assigned equipment (AFSCM 21-series).
- 4.7.2.23. Controls off-equipment work.
- 4.7.2.24. Schedules, controls, and documents TCTOs/TCIs, and OTIs according to 00-20-series T.O.s, Chapter 15 of this instruction, and MIS AFSCM 21-series.
- 4.7.2.25. Sets scheduling priorities based on the minimum number of each type of equipment, and monitors and reports changes to AGE MEL's (as established locally) to the MOC.
- 4.7.2.26. Trains and supervises section personnel, including the AGE scheduler and supply specialist.
- 4.7.2.27. Maintains the element's T.O. files IAW T.O. 00-5-1/2. T.O. files may be decentralized and managed by respective workcenters.
- 4.7.2.28. Manages the element's repair cycle program.
- 4.7.2.29. Manages the element's tool storage and issue areas IAW Chapter 13 of this instruction.
- 4.7.2.30. Manages the element's TMDE program.
- 4.7.2.31. Manages the element's supply function. Provides parts, bench stock, and supplies IAW Chapter 8 of this instruction.
- 4.7.2.32. Manages the element's scheduling function.
- 4.7.2.33. Manages the element's fuels management program.
- 4.7.2.34. Manages the element's input and participation in the Air Force Repair and

Enhancement Program (AFREP).

4.7.2.35. Manages the element's hazardous material (HAZMAT), hazardous waste, and Environmental Safety and Occupational Health (ESOH) items requirement program IAW applicable directives.

4.7.2.36. Monitors the production of each section or team and recommends equipment and personnel adjustments to the element supervisor.

4.7.2.37. Monitors section or team adherence to the flight's safety, training, and CTK programs and manages IAW Chapter 13.

4.7.2.38. Frequently spot checks equipment for serviceability.

4.7.2.39. Resolves production conflicts between sections or teams.

4.7.2.40. In conjunction with the LGLT develops course control documents for AGE familiarization training.

4.7.3. AGE personnel will:

4.7.3.1. Correct deferred discrepancies and discrepancies discovered during inspection.

4.7.3.2. Perform TCTOs as required.

4.7.3.3. Validate all AGE NMCS and parts requests before placing items on order.

4.7.3.4. Prepare AGE and section equipment for storage or shipment.

4.7.3.5. Perform corrosion inspections of AGE and treat corrosion before assembly.

4.7.3.6. Clean, tag, and prepare components before routing through the repair cycle.

4.7.3.7. Perform AGE operational checks before returning equipment to the serviceable status.

4.7.3.8. At MXG/CC option, maintain MA-1A enclosures installed on deicer trucks.

4.7.3.9. For consolidated aircraft support system (CASS) units, repairs, inspects, and services flexible conditioned air ducts, liquid coolant hoses, start (bleed) air ducts, power cables, and couplings.

4.7.3.10. Performs servicing inspections on powered and non-powered AGE according to equipment work cards to ensure proper fuel and oil operating levels, and other servicing requirements are met.

4.7.3.11. Prepares AGE for deployment.

4.7.3.12. Reviews AFTO Forms 244/245 for equipment prior to maintenance.

4.7.3.13. At MXG/CC option, picks up and delivers all AGE, except operator dispatched equipment (e.g., bomb lifts and powered munitions trailers).

4.7.3.14. NPA is normally located in the using organization, unless maintenance or inspection needs dictate return to AGE. Normally, the equipment users are responsible for transporting NPA within the using organization. Using organizations are responsible to inspect and service NPA prior to use.

4.7.3.15. At MXG/CC option, delivers oxygen and nitrogen carts to servicing and maintenance facility.

4.7.3.16. Moves equipment on the flightline in support of the expediter.

4.7.3.17. Updates vehicle status display, if required by the element chief.

4.7.3.18. AGE Supply Support. Supply responsibilities are outlined in Chapter 8 of this instruction.

4.7.3.19. At MXG/CC option, AGE Sub-pools. A sub-pool is a site, other than the central AGE parking area (ready line), where AGE is positioned for future dispatch. Sub-pools are set up based on mission needs, facilities, or base layout. AGE element supervisor will coordinate sub-pool locations with airfield management and perform spot checks of sub-pooled AGE.

4.7.3.20. Tow Vehicles. AGE tow vehicles are radio equipped to expedite the delivery of AGE. Radios will be permanently installed or hand held. Initial radio operator familiarization training is given to vehicle drivers. AGE element supervisor will establish proper distribution and control of assigned vehicles.

4.7.3.20.1. Vehicle Status. If required by the AGE element supervisor, a vehicle status display is used to show the status of vehicles. Minimum information consists of vehicle type, registration number, and status.

4.8. Not used.

4.9. Avionics Element.

4.9.1. General. The sections assigned to this element will vary depending on the weapons systems supported and the scope of maintenance responsibilities. The Avionics Element maintains avionics systems, related equipment, and components. It may consist of the Mission Systems Shop, Communications/Navigation Shop, Instrument/Flight Control/Guidance Control Shop, Avionics Intermediate Shop/Intermediate Automatic Test Station, and Electronic Warfare.

4.9.2. Supervisor Responsibilities. In addition to the common responsibilities listed in Chapter 2, the Supervisor:

4.9.2.1. Coordinates with maintenance leaders to develop procedures for accomplishing programming of EW systems. This element develops maintenance procedures, in conjunction with the OG/CC, to accomplish programming of Electronic Warfare Systems to include secure voice, IFF and Data Link.

4.9.2.2. Ensures control and storage of assigned AME (AFI 21-103). Develop local procedures for control and storage of items not specified in dash 21 T.O.s.

4.9.2.3. Ensures personnel do not make unauthorized or false transmissions on international distress frequencies (T.O. 31R2-1-251, *General Instructions-Transmission of False Distress Signals on Emergency Frequencies*).

4.9.2.4. Ensures cryptography components are controlled and maintained according to National Security Agency and HQ USAF/XOI directives.

4.9.2.5. Ensures adequate personnel are trained and qualified to perform on station calibration tasks formerly handled by Type IV PMEL to include the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.2.6. Implements the "Bad Actor" program IAW T.O. 00-20-1. A Bad Actor is a component or assembly repeatedly identified as the source of failures within a specific time frame.

4.9.2.7. Establishes procedures and ensures configuration control of all applicable software are both current (latest date) and correct for the application and use for which it is intended. Ensure technicians check Automated Computer Program Identification Number System (ACPINS) at least weekly for software updates for assigned systems. A software sub-account will be established, allowing the shop/section access to the ACPINS. Software configuration control will be maintained IAW T.O. 00-5-16, *Manual USAF Automated Computer Program Identification Numbering System (ACPINS)*, and T.O. 00-5-17, *Users Manual USAF Computer Program Identification Numbering (CPINS) System*.

4.9.2.8. Manage and direct work effort of the repair team, and is responsible for the quality of maintenance performed.

4.9.2.9. Manage and direct the following maintenance actions if the required support equipment is authorized and on-hand. (**NOTE:** Avionics Elements supporting 2LM, multiple MDS, and those organized under the combat support team structure are authorized to form functional sections below element level to achieve efficiency and maintain effective span of control.) The following guidelines apply to organizations operating under 2LM.Repairs above and beyond those listed require approval from the appropriate approval authority (ANG, depot). 2LM elements will limit repairs to:

4.9.2.9.1. Could not duplicate (CND) or bench check serviceable (BCS) screening.

4.9.2.9.2. Wing-level TCTOs.

4.9.2.9.3. LRU operational flight program (OFP) loads.

4.9.2.9.4. Cross-cannibalization of shop-replaceable units (SRU).

4.9.2.9.5. Replacement of minor bits and pieces.

4.9.3. Communication-Navigation Section.

4.9.3.1. Performs on/off-equipment maintenance and/or CND screening on communication and navigation components and systems, including assigned SE not maintained by TMDE.

4.9.3.2. Maintains communications and navigation systems, components, and test equipment designated "user responsibility" in T.O. 33K-1-100-CD-1, *TMDE Calibration Notes Maintenance Data Collection Codes CAL Measurement Summaries, Calibration Procedure, Calibration Interval, and Work Unit Code Reference Manual*. (**NOTE:** When other test equipment-including contractor-maintained test equipment-requires calibration or repair, submit it to the TMDE Flight IAW T.O. 33K-1-100-CD-1.) Responsibilities also include maintenance of radar altimeters, Mark XII systems (AIMS), identification friend or foe (IFF) systems, direction finder equipment that is an integral part of airborne radios, secure voice systems, long range aids to navigation (LORAN), and global positioning systems. Typical COMM/NAV systems may include HF, UHF, VHF, IFF, ADF, VOR/ILS, TACAN, AFSATCOM/SATCOM, Cockpit Voice Recorder (CVR), Emergency Location Transmitter (ELT), secure voice, interphone, search/weather/doppler radars, radar/radio altimeters, global positioning satellite (GPS), Traffic Collision Avoidance System (TCAS), and associated data-bus management system components.

4.9.4. Guidance and Control Systems (GCS) Section.

4.9.4.1. Performs on/off equipment maintenance on guidance and control systems, to include

automatic flight control systems, all-weather landing systems, attitude heading reference systems (AHRS), instrument systems, attitude reference and bombing systems, flight director systems, auxiliary flight reference systems, pressure altimeters and encoders of the AIMS systems, engine test cell aircraft instrumentation, inertial navigation systems (INS), and navigation computers. GCS will ensure the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.4.2. Maintains compass and stability augmentation systems (SAS), weapons release computer systems (WRCS), flight data recorders (FDR), maintains fuel savings advisory systems (FSAS), Malfunction, Detection, Analysis and Recording Subsystem (MADAR), Doppler systems, navigational computers, loads environment spectra survey (LESS) recorder systems, ground proximity warning systems (GPWS), and assigned SE not maintained by TMDE.

4.9.4.3. Maintains engine test cell aircraft instrumentation and test equipment designated “user responsibility” in T.O. 33K-1-100-CD-1. (**NOTE:** When other test equipment including contractor maintained test equipment requires calibration or repair, submit it to the TMDE Flight IAW T.O. 33K-1-100-CD-1.) Performs off-equipment maintenance and/or CND screening on guidance and control components and systems to include assigned SE not maintained by TMDE. Typical GCS GUID/CONT systems may include automatic flight control, compass, flight director, attitude heading reference, stability augmentation, air data, flight/engine instruments, fuel/liquid quantity instruments, flight recorders, inertial navigation, flight management, and associated data-bus management system components.

4.9.5. Weapons Control System Section.

4.9.5.1. Maintains aircraft weapons control systems, lead computing optical sight systems and assigned SE not maintained by TMDE. This section also performs on-equipment calibration of weapons control systems.

4.9.6. Sensors Section.

4.9.6.1. Performs on/off-equipment maintenance of sensor systems and associated support equipment not maintained by TMDE. This function may be assigned to Avionics Element or AMXS depending on MDS.

4.9.6.2. Maintains pod histories, pod statistics (Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD)), and scheduling records, AN/AAS-35 Pave Penny Target Identification Set Laser (TISL) systems, maintains and operates simulated laser target (SLT), AVTR, Cockpit Television Sensor (CTVS), Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pods and systems, LANTIRN Mobility Shelter Set (LMSS), Forward Looking Infrared Radar (FLIR), Downward Looking Infrared Radar (DLIR), Improved Weather Reconnaissance System (IWRS), and Infrared Acquisitions/Designation System (IRADS).

4.9.7. Electronic Warfare System (EWS) Section.

4.9.7.1. Electronic Warfare (EW) Shop performs on- and/or off-equipment maintenance, depending on MDS, on Radar Warning Receivers (RWR), chaff/flare dispensers, Electronic Countermeasure (ECM) systems. These EW systems may be either internally or pod mounted in or on the aircraft. EW personnel ensure all classified EW systems and TMDE are properly stored, transported, and controlled. If the EW workload is sufficiently small, the MXG/CC may assign this workload and associated manpower to another section/shop. EW personnel may be

tasked to load chaff/flare IAW chapter 14.

4.9.7.2. Maintains EWS status and scheduling records.

4.9.7.3. Reports Electronic Attack (EA) pod status to Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD) if maintaining EA pod equipment. Other EWS status is reported in accordance with technical orders 00-20-1, and -2.

4.9.7.4. Stores and controls non-installed EA pods according to applicable directives. Other removed EWS components are controlled in accordance with technical order 00-20-3, Maintenance of Repairable Property and the Repair Cycle Asset Control System.

4.9.7.5. EA pod maintenance functions establish program to effectively manage cannibalization pods to return them to service at a minimum every time the Preventive Maintenance Inspection (PMI) is due.

4.9.7.6. Maintains inventory control of EWS alternate mission equipment. Loads proper contingency and training configuration settings in ECM pods, infrared countermeasures systems and radar warning receivers (RWR) unless equipment/responsibility is assigned to another repair section.

4.9.7.7. Develops an EWS assessment program to verify system operation in accordance with applicable aircraft and system technical data.

4.9.7.8. When applicable and directed, determines maintenance responsibility for aircraft adapter group equipment.

4.9.7.9. Loads proper contingency and training software in reprogrammable EWS in accordance with applicable system technical data and AFI 10-703, *Electronic Warfare Integrated Reprogramming*.

4.9.8. Avionics Intermediate Section. AIS will ensure the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.8.1. Maintains programs and performs TCTOs on avionics components specific to assigned test stations and support equipment.

4.9.8.2. Maintains, calibrates, certifies and performs TCTOs on assigned SE not maintained by TMDE.

4.9.8.3. Avionics Section is responsible for overall management and control of the Automatic Test Reporting System (ATERS) (CAMS/REMIS corrections).

4.9.9. Video Shop: performs on- and off-equipment maintenance on airborne video equipment such as video cameras, motion picture projectors, slide film projectors, video monitors, processing and distribution amplifiers, video audio switchers, synchronizing generators, and control circuitry. At MXG/CC option, this shop may be assigned to the Aircraft Maintenance Squadron.

4.9.10. Sensor/CTVS/AVTR performs on- and off-equipment maintenance on sensors, cockpit video system, and airborne video tape recording system. This function may be assigned to Avionics Element or AMXS depending on MDS.

4.10. Fabrication Element.

4.10.1. This activity is responsible for modification, corrosion control, local manufacture,

inspection, and repair of aircraft and SE beyond the owning workcenters capabilities. The element is organized into the following functions: Aircraft Metals Technology, Aircraft Structural Maintenance, Survival Equipment, and Nondestructive Testing (NDI).

4.10.2. Element/workcenter supervisor Responsibilities. In addition to the common responsibilities outlined in Chapter 2, the element/workcenter supervisor:

4.10.2.1. Provides sufficient local manufacture capability to meet mission requirements and monitors all local manufacture work order requests.

4.10.2.2. Coordinates repair requirements with the AGE element chief. For AGE welding requirements not covered by end-item technical orders, both element chiefs will determine the economy of repair action. The fabrication element chief makes safety determinations. The fabrication element chief will ensure the material of AGE requiring repair meets the general welding guidelines in T.O. 34W4-1-5, *Operator Manual-Welding Theory and Application*, and AFOSH STD 91-5, *Welding, Cutting, and Brazing*. The determination of equipment integrity, for the purposes of welding, is made by the AGE element chief.

4.10.2.3. Develops procedures to ensure assigned survival equipment specialist personnel are trained and certified on thermal protective devices and shields IAW Chapter 18 of this instruction.

4.10.3. Aircraft Structural Maintenance (ASM) Section. This section manages structural repair, corrosion control, composite repair, and low observable (LO) coatings. Provides inspection, damage evaluation, repair, manufacture, and/or modification of metallic, composite, fiberglass, plastic components, related hardware associated with aircraft and support equipment, and may manage the aircraft wash rack and the corrosion control facilities, when assigned. In addition to common element/workcenter supervisor responsibilities in Chapter 2, the element/workcenter supervisor:

4.10.3.1. Designs and constructs special forming fixtures and dies. Ensures special fixtures, dies and forming tools are protected to prevent damage.

4.10.3.2. Repairs honeycomb panels, skin stressed dome antenna panels, dome antennas, radomes, metal-bonded, and composite materials.

4.10.3.3. Manufactures metal tubing, conduits, and cables IAW drawings and specifications.

4.10.3.4. Stocks supplies and equipment to support aircraft and equipment washing, inspection, and treatment when assigned.

4.10.3.5. Purchases equipment and materials and ensures facilities are available to provide the capability to chemically or mechanically inspect, remove, and treat corrosion on aircraft, engines, AGE, and components.

4.10.3.6. Monitors the washing and corrosion inspection schedule in the weekly and monthly maintenance plans.

4.10.3.7. Ensures protective/LO coatings are applied to aircraft, AGE, applicable munitions, and components per applicable T.O.s and IAW local, state and federal environmental directives.

4.10.3.8. Provides training and assistance to sections managing their own corrosion programs to include cleaning operations, corrosion prevention, inspection, removal and treatment techniques.

4.10.3.9. Performs corrosion control and ensures wash rack procedures/requirements are accomplished IAW AFI 21-105, *Aerospace Equipment Structural Maintenance*, ANG instructions, and MDS-specific T.O.s. May manage the aircraft wash rack and the corrosion control facilities, when assigned.

4.10.3.10. Ensures personnel are rotated to maintain currency in all aspects of the career field, e.g., coating application and removal, Radar Absorbent Materiel (RAM) application and removal, insignia and markings, and structural repair competency.

4.10.3.11. Develops procedures to ensure assigned ASM personnel are trained and certified on aircraft intake maintenance IAW Chapter 18 of this instruction.

4.10.3.12. Maintain a current copy of the Qualified Products Listing (QPL). The QPL identifies qualified products (i.e., cleaners, paints, etc...) within a particular Mil-spec and are the only approved materials for use on ANG aircraft, subsystems and support equipment. Products not listed on the QPL are unauthorized and will not be used. The QPL can be located at the following Air Force Corrosion Prevention and Control Office web site: www.afcpo.com.

4.10.4. Metals Technology Section. Aircraft Metals Technology. Responsible for inspection, repair, performs heat treating, cleans, welds, fabrication of aircraft equipment, parts, and tools. Removes fasteners (i.e. bolts, screws and studs) beyond the capability of other aircraft maintenance functions and other duties as assigned. This supervisor:

4.10.4.1. Ensures assigned welders are certified and maintain proficiency IAW T.O. 00-25-252, *Certification of USAF Aircraft and Missile Welders* and AFI 21-105, and ANG instructions.

4.10.4.2. Provides and enforces the use of required safety devices. Gives safety briefings stressing the hazards of arc radiation.

4.10.4.3. Ensures proper materials are selected for local manufacture.

4.10.4.4. Observes machine tool set-up procedures, machine cutting operations, operations performed by hand, and general machine section operations, such as bench assembly, fitting, and adjusting machine parts.

4.10.4.5. Ensures technicians follow procedures in AFOSH STD 91-series and 48-series.

4.10.4.6. Ensures special tools, and fixtures are designed, fabricated, protected and properly stored.

4.10.5. Survival Equipment Section. This function is located in Operations on the Full Time manning document and located in Maintenance on the Military manning document. Regardless of location, the responsibilities remain the same and are subject to QA technical assistance and evaluations. This section inspects, repairs, manufactures, packs and re-packs fabric, canvas, leather, rubber, survival equipment, rubberized products and flotation equipment. Inspects, repairs, and packs recovery and drogue parachute systems for both personnel and aircraft, as well as flotation equipment, protective equipment, emergency evacuation systems, and associated subsystems. **NOTE:** for Airdrop units: Inspection and maintenance of cargo extraction and drop parachutes are done by aerial port activities. (**EXCEPTION:** For units where AFSC 2A7X4 is not authorized, the MXG/CC or designee establishes alternate support arrangements.) This section:

4.10.5.1. The section is not responsible for ordering forecasted life sustaining TCIs. However, if

a unit of life sustaining equipment is in the SE section for maintenance other than time change and discrepancies are found, SE will order the necessary bits and pieces to repair the unit regardless if the item is a TCI or not.

4.10.5.2. Responsible for inspection, cleaning, and testing of aircraft and aircraft maintenance safety belts and harnesses, repair or fabrication of sound proofing materials, repair of organizational equipment and textile items. Evaluates the extent of damage and wear to material and equipment IAW technical data, and decides whether to repair or replace.

4.10.5.3. Manufactures, inspects, cleans, and packages aircraft thermal radiation barriers IAW Chapter 18 of this instruction.

4.10.5.4. Repairs 463L cargo nets, if applicable.

4.10.5.5. Maintains liaison with squadron aircrew life support sections to determine support and workload requirements. Life support policies and procedures are found in AFI 11-301, *Aircrew Life Support (ALS) Program*.

4.10.5.6. Inspects, repairs and modifies protective clothing and equipment IAW technical directives.

4.10.5.7. Validates accuracy of AFTO Form 391, **Parachute Log**, AFTO Form 392, **Parachute Repack, Inspection and Component Record** and applicable flotation equipment forms.

4.10.5.8. Ensures maintenance, inspection, and repair capability exists for maintaining aircrew survival equipment (personnel and recovery parachutes, flotation equipment, and protective clothing) through procurement of expendable repair parts. Establish special stock levels to support the repair and replacement of parts for anti-exposure suits.

4.10.5.9. Ensures repairs and modifications to flight clothing and other life support equipment are in strict accordance with applicable tech data. **NOTE:** Clothing owners are responsible for attachment of Velcro, patches, and rank insignia, however, the MXG/CC may direct this section to attach Velcro, patches and rank insignia.

4.10.5.10. Performs preventative and minor or major maintenance on sewing machines.

4.10.5.11. Establishes a 6-month recurring training program on infrequently maintained systems (i.e., ACES II drogue chute) to ensure personnel are proficient.

4.10.5.12. Ensures personnel conducting maintenance on parachutes are current and qualified in AFSC 2A7X4. If non-AFSC 2A7X4 personnel are used to conduct IPIs, they will attend a formal training course prior to conducting parachute maintenance.

4.10.6. Non-destructive Inspection (NDI) Section. The section will provide the capability to determine structural integrity of aircraft, engines, specified components, AGE, and oil analysis program (OAP). In addition to the common element/workcenter supervisor responsibilities outlined in Chapter 2, the NDI element/workcenter supervisor:

4.10.6.1. Ensures capability exists to perform optical, dye-penetrant, magnetic particle, ultrasonic, eddy current, and radiographic inspections.

4.10.6.2. Maintains liaison with the base medical service which provides occupational physicals, emergency treatments, film badge services, and acts as radiographic advisors IAW AFI 48-125, *The US Air Force Personnel Dosimetry Program* and AFOSH 91-110, *Non-Destructive*

Inspection and Oil Analysis Program.

4.10.6.3. Controls and disposes of radiographic silver-bearing material IAW AFMAN 23-110. Coordinates with the base medical and photo facilities to prevent duplication of disposal effort.

4.10.6.4. Performs NDI of aircraft, engines, AGE, and other equipment. Inspection findings are normally limited to a description of the size, location, and type of any defect discovered. NDI personnel do not make serviceability determinations except for "inspect only" TCTOs and if NDI actions constitute a completed maintenance action.

4.10.6.5. Establishes technique files using **AFTO Forms 242, Nondestructive Inspection Data**, and T.O. 33B-1-1, *Nondestructive Inspection Methods*.

4.10.6.6. Ensures process control procedures IAW T.O. 33B-1-1 and other directives.

4.10.6.7. Ensure radiographic film files contain, as a minimum:

4.10.6.7.1. The last complete set of radiographs for each assigned aircraft and engine by serial number or ID number. Annotate the name of the person who interpreted the film. **NOTE:** Ensure the person interpreting the film also initials the set of radiographs or a locally developed interpretation worksheet, as applicable.

4.10.6.7.2. Radiographic paper exposures, such as non-detrimental FOs and non-detrimental discrepant honeycomb moisture exposures, may be discarded or reclaimed immediately after the discrepancy is corrected.

4.10.6.8. Contractor personnel must be qualified and certified according to National Aerospace Standard (NAS) 410, NAS Certification and Qualification of Nondestructive Test Personnel.

4.10.6.9. If the assigned MDS has an OAP requirement see ANGI 21-105.

4.11. Not used.

4.12. Munitions Element. Responsible for the control, accountability, storage, shipping and receiving, inspection, maintenance, assembly and delivery of conventional, and precision guided munitions. The Element manages and maintains all assigned tools, test, and munitions handling equipment. It also administers, operates and maintains the Combat Ammunitions System-Base and Deployable (CAS-B and D). ANG units not using the CAS-B workorder program will develop an OI for manual procedures IAW AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*. Munitions Elements are typically composed of three sections: Production, Materiel and Systems. Refer to AFI 21-201. Operations involving explosives will have a minimum crew size of two qualified munitions personnel. Munitions element supervisor, in coordination with QA, will develop quarterly standards IAW paragraph 10.9.1.3.9.

4.12.1. Munitions Accountable Systems Officer (MASO). IAW AFI 23-111 the assistant USP&FO will be the MASO. The MASO is responsible for the accountability of munitions. The MASO reports transactions that affect the accountable records of items in the munitions account. MASO responsibilities are outlined in AFIs 21-201 and 23-111. Coordinate with the MXG/CC or the weapons directorate director (commensurate with GP/CC in applicable units) to establish unit procedures to reconcile training munitions issued for requirements in accordance with IAW AFI 36-2217, *Munitions Requirements for Aircrew Training*. Upon receipt of the War Consumables Distribution Objective (WCDO) the MASO, DO, and Plans will review the document for accuracy and report any discrepancies to ACC/LGW/LGX and with an info copy

to ANG/LGMW.

4.12.1.1. Deployable CAS is the primary means to account for munitions while deployed and in establishing "BARE BASE". Units must develop and be able of implementing backup procedures to maintain accountability in event of system failure or power loss.

4.12.2. Storage Facilities. Munitions assets, including inert components, are stored in approved storage structures for security and protection IAW AFMAN 91-201. If secured storage is limited, preference is given by the risk category and classification as outlined in AFI 21-201, AFMAN 10-401 Vols 1 and 2, and AFMAN 23-110.

4.12.3. Ensures approval of locally manufactured equipment (LME) if not included in tech data or the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL <https://wmnet.eglin.af.mil/mmhe/>. MXG/CC's will establish approval procedures for all weapons LME. All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-103, Air Force Nuclear Safety Certification Program.

4.12.3.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

4.12.3.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment (LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. (EXCEPTION: LME that is designed to or will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, etc.) will be coordinated through the ANG/LGMW for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE Pamphlet by sending approved drawings to the ANG/LGMW for evaluation/coordination, prior to the ANG/LGMW forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103.

4.12.3.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit that is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph 4.4.12.2. Stands and storage racks purchased through supply must also comply with the above safety standards.

4.12.3.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained for all major MMHE/MHE items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

4.12.3.5. Munitions Control (M/C). M/C will use visual aids to provide access to critical data IAW AFI 21-201. MMHE & TCTO status will be tracked in one of the following options:

CASB, CAMS, or MC2K. AFI 21-201 paragraph 2.12.26. does not apply to the ANG units except MMHE.

4.13. Propulsion Element.

4.13.1. The Propulsion Element maintains aircraft engine propulsion units, propulsion components, and propellers to include composite propeller blades. The element performs engine/module/accessory disassembly, assembly, test, and repair. The element has responsibility for jet engine intermediate maintenance (JEIM); test cell and noise suppression systems (NSS); accessory and quick engine change (QEC) repair; small gas turbine; module/accessory repair section; engine support equipment; and turbo-prop/turbo-shaft repair, engine isochronal/phase inspections, as required. These sections may be combined or grouped at the discretion of the maintenance Squadron/flight commander. Programs such as engine regionalization and 2LM may affect the standard organizational structure and responsibilities.

4.13.2. Element/workcenter supervisor responsibilities. In addition to common responsibilities in Chapter 2, the element supervisor:

4.13.2.1. Is the focal point for propulsion maintenance programs, focusing on continuity, compliance and standardization, provides advice to leadership on propulsion issues, and monitors all aspects of propulsion maintenance program.

4.13.2.2. Acts as the Group 2A6X1 AFSC functional manager, providing technical guidance to achieve and maintain quality propulsion systems to support the wing mission.

4.13.2.3. Reviews production data to ensure propulsion units and components processed through the element are repaired and functionally checked in accordance with established flow times, including quick engine change (QEC) configuration when applicable.

4.13.2.4. Coordinates with the engine manager to ensure accurate engine and equipment status reporting.

4.13.2.5. Provides JEIM regional repair (QUEEN BEE), and/or engine regional repair center (ERRC) support to other organizations, when directed.

4.13.2.6. Develops guidelines to comply with Air Force and wing OAP requirement IAW 33 series technical orders and AFI 21-124.

4.13.2.7. Determines kit requirements for recurring maintenance actions if applicable. Kits are pre-assembled from bench stock, in minimum quantities necessary, to support workload requirements. Repair cycle assets are not included in kits. Unused kit items will be returned to bench stock.

4.13.2.8. Reviews/analyzes all unscheduled engine or module removals and test cell rejects IAW AFI 21-104, *Selected Management of Selected Gas Turbine Engines*.

4.13.2.8.1. Reviews/analyzes major component failure trends.

4.13.2.8.2. Provides advice to the Group Commander's Engine Trending & Diagnostic (ET&D) program, as required.

4.13.2.9. Monitors proper disposition of engines and components IAW technical directives.

4.13.2.10. Establishes CANN procedures for in-shop, flightline and deployed locations according to Chapter 18 and T.O. 00-20-2, includes coordination with the Engine Management

(EM) section. Procedures will ensure sufficient time remains on TCIs prior to CANN action approval.

4.13.2.11. Ensures availability of all maintenance documentation (T.O. 00-20-2), including accomplishment of AFTO Forms 244 and 245 on engine test stands, test cells, NSS, and propulsion support equipment (includes cranes and hoists, trailers, etc.). This documentation can be tracked utilizing MIS.

4.13.2.12. Coordinates with base civil engineering to provide maintenance on NSS and engine test cells. If the wing or squadron is a tenant, incorporate this maintenance requirement into the host-tenant support agreement. Ensures maintenance contract is established IAW AFI 32-1001, Section D.

4.13.2.13. Ensures an engine run qualification/certification program is established IAW AFI 11-218 *Aircraft Operations and Movement on the Ground*, and Chapter 18 of this instruction. The MXG/CC or OG/CC (as appropriate) will appoint a Unit Engine Run Program Manager, preferably within the engine shop. Each individual designated as engine-run qualified is task certified on the SCR. Certification is documented in MIS by aircraft MDS/engine series with maximum power settings specified, when applicable.

4.13.2.14. Establishes a forecast list of supplementary part requirements based on a review of repair documentation for the preceding 6 months, and ensures adequate stock of the items is available as applicable to the MDS.

4.13.2.15. Ensures specialized and long life shipping devices and containers are accounted for and maintained in a serviceable condition (AFMAN 23-110, AFI 21-104, and T.O. 00-85-20, *Engine Shipping Instructions*).

4.13.2.16. Ensures that engines and engine components removed from crashed damaged aircraft are disposed of properly (AFMAN 23-110).

4.13.2.17. Determines if pre-maintenance test cell runs are required for all engines removed.

4.13.2.18. Designates qualified personnel as bearing inspectors.

4.13.2.19. Ensures a flexible and rigid borescope certification program, for each TMSM possessed, is established IAW Chapter 18.

4.13.2.20. Ensures a blade blending certification program, for each TMSM possessed, is established IAW Chapter 18.

4.13.2.21. Tracks the status of ready spare engines using a visual display or automated product showing: serial number; configuration (type and position, if applicable); time remaining until next scheduled engine removal, overhaul or reconditioning, preservation date, type accomplished, re-preservation due date, OAP code (if applicable), and remarks.

4.13.2.22. The element supervisor works closely with MOF EM section to program engine removals for the weekly and monthly maintenance plans. Scheduled and unscheduled engine removals are important considerations in balancing propulsion element's workload with their production capability. The element supervisor and the MOF EM section develop a 1-year plan to smooth surges in the engine maintenance workload. Use automated methods to develop the 1-year plan and include scheduled engine removals for TCIs, PEs, and TCTOs. Include a factor for projected unscheduled removal.

4.13.2.23. Ensures propulsion element FOD prevention program responsibilities are followed.

4.13.2.24. Ensures auxiliary power units (APU) are tested, maintained and monitored IAW appropriate guidance, when assigned.

4.13.3. Oil Analysis Program (OAP). Accurate oil sampling determines the internal condition of engines and accessories. Coordinate with the OAP laboratory to obtain maximum benefits from OAP data when abnormal wear-metal trends are indicated.

4.13.3.1. If required, the propulsion element supervisor:

4.13.3.1.1. As the primary OAP Manager ensures all OAP responsibilities are performed IAW AFI 21-124.

4.13.3.1.2. Establishes procedures to monitor OAP trends and takes required actions.

4.13.3.1.3. Ensures personnel are trained to identify and respond to wear metal limits for assigned and maintained engines, and are trained to perform sampling procedures (T.O. 33-1-37-2, *Joint Oil Analysis Program Laboratory Manual*, Volume II).

4.13.3.1.4. Ensures oil samples taken at the test cell are promptly delivered to the OAP laboratory.

4.13.3.1.5. Acts as a central point-of-contact for all abnormal OAP laboratory results.

4.13.3.1.6. Forwards information to the OAP laboratory concerning actions taken as a result of OAP recommendations.

4.13.3.1.7. If the NDI laboratory providing OAP support is not located on the same base as the supported unit, or the supported unit does not have NDI/OAP personnel assigned, assign the OAP responsibilities outlined in T.O. 33-1-37-1/2/3 to the owning organization. The owning organization provides samples in an expeditious manner to the supporting OAP laboratory. The owning organization also:

4.13.3.1.7.1. Establishes collection points and procedures to receive and forward OAP samples to the supporting laboratory; monitors sample collection; assigns control numbers, and provides blocks of sample control numbers for use in other squadrons.

4.13.3.1.7.2. Advises squadron maintenance supervision, MOC and the owning workcenter of abnormal OAP trends.

4.13.3.1.7.3. Reviews OAP cycle times (from sampling to receipt at the laboratory and return to the unit) to ensure processing meets mission needs.

4.13.4. Support/Supply Section. In addition to common responsibilities outlined in Chapter 2, the support section ensures an element due-out release point and holding bins are established, and UND "A" and UJC BQ requirements are verified. The support section processes supply requests, maintains AF Forms 2413 (or operates remote devices), tracks MICAP due-outs, monitors bench stock, conducts bench stock and adjusted stock level reviews, and operates tool storage areas. If applicable, otherwise duties are assumed by Propulsion Element Supervisor.

4.13.5. Jet, Turbo-prop, Turbo-shaft Engine Intermediate Maintenance (JEIM) Section. The JEIM section stores, builds up, tears down, modifies, and repairs engines, QEC kits, and tests components. Shops that repair engines under 2LM will normally do "retained tasks" only. In addition to common responsibilities in Chapter 2, the JEIM element/workcenter supervisor:

4.13.5.1. Plans and monitors the progress of propulsion system maintenance, ensuring maintenance schedules are met by anticipating materials required and managing delays to prevent schedule disruptions.

4.13.5.2. Prepares propulsion units and components for shipment and ensures units being returned to depot are properly identified. Attaches CEMS products to life-limited components (T.O. 00-20-series), (**NOTE:** Only if the source of repair requires a paper CEMS product and ensures components rejected by Automated Ground Engine Test Set/Engine Test Trim Automated System (AGETS/ETTAS) are shipped with printouts and deficiency reports (if applicable)).

4.13.5.3. Ensures documentation of TCTO compliance IAW T.O. 00-20-series.

4.13.5.4. Ensures use of CEMS products (obtained from EM) for all assigned engines. CEMS products will list all parts and serial numbers installed on the engine.

4.13.5.5. Establishes procedures to ensure all parts and serial numbers are inventoried when an engine is received or released by the section. Notify EM when a different serial numbered part is installed or changed so the automated record is updated.

4.13.5.6. Perform production scheduling. At a minimum, scheduling includes: Informing element chief of significant problems and production delays. Immediately informing MOF EM section of engine status changes (AFI 21-104). Maintaining and reviewing production records to update flow times and identify problem areas.

4.13.5.7. Ensures an Engine Work Folder is established for each engine during periodic inspection, reconditioning, or other maintenance. Automated engine work folder packages may be used. All engine shops will establish engine work folders on all possessed engines and engine management section or JEIM will maintain the folders until the engine is transferred. The work folder will transfer with the engine. (**NOTE:** A copy should be maintained by the losing organization for at least 6 months). Gaining units will maintain the work folders and ship the documents with the engine to depot when appropriate. The engine work folder contains a list of all parts, TCTOs and TCI requirements for the engine. The worksheets document engine historical information, critical maintenance management stages, and employee numbers of technicians and supervisors completing maintenance and inspections. One work order is initiated in MIS for an entire job. Separate job control numbers/workcenter events (JCN/WCE) are initiated for discrepancies found during the look phase of an inspection or subsequent to repair. Complete the MIS work orders during inspection, reconditioning or maintenance. Supplement work folders and worksheets to fit unit needs. Element may use computer-generated products, provided they include all required information. As a minimum, work folders will contain the following:

4.13.5.7.1. Engine/Module/Accessories Information Worksheet. This form is used to provide a quick synopsis of maintenance accomplished. Include: engine serial number, type, position (if applicable), engine operating time, date started work, date turned serviceable, job control number, maintenance required, reason for removal, list of time change and TCTO requirements. The supervisor reviews signature blocks (crew chief, support, EM), and element/workcenter supervisor verifies all repair requirements have been accomplished and documented in the work folder. Ensure a job control number created by the JEIM/Module/Accessories or EM section and is used to process repair of the engines, modules, and any additional flightline profile

packages/WCE (NA under G081). Schedule flightline profile packages/WCE and MIS profile packages against the flightline-generated WCE (N/A under G081). **Exception:** Engines received from off station operating units will establish new job control numbers and WCEs. This procedure will ensure all maintenance data is documented against one JCN and engine failure information is connected to the in-shop action.

4.13.5.7.2. Receiving Inspection Worksheet. For documenting items to be accomplished by JEIM prior to engine repair. Minimum requirements: FOD check of engine inlet and exhaust, inspection of engine for general condition and fluid leakage, EHR/TEMS data (if applicable), Engine Trending Diagnostic (ET&D) (if applicable), borescope inspection (if applicable), a check with OAP lab for possible problems, and a list of unique or problem areas to be checked prior to engine disassembly or maintenance.

4.13.5.7.2.1. If applicable, include the following: Engine History Recorder/Turbine Engine Management System (EHR/TEMS) data, ET&D, borescope inspection, a check with OAP lab for possible problems, and a list of unique or problem areas to be checked prior to engine disassembly or maintenance.

4.13.5.7.3. Serially Controlled/Time Tracked Item Replacement Record. This form shows a list of components replaced by nomenclature, old and new part number (if applicable), and serial number.

4.13.5.7.4. Daily Summary Record. This form provides a synopsis of maintenance performed during each shift. Document work packages, subordinate work packages, and T.O.s used to perform the task in the Summary Block. All entries in the Summary of Maintenance section will include Shift, Rank, Last Name, and Employee Number of person making the entry. Units may use a general purpose or command/locally generated form.

4.13.5.7.5. In-Process Inspection (IPI) List. This form includes the WUC, nomenclature, specific step required for the IPI, and space for employee numbers and signatures of technicians and inspectors performing maintenance.

4.13.5.7.6. Parts Requisition Record. Use this form to list all parts (including TCIs) on order. At a minimum, this form will include the following headings: Engine/Module/Accessory TMSM, Engine/Module/Accessory Serial Number, Nomenclature, Part Number, NSN, Requisition Number, Priority, Status, DIFM Clear with Yes and No sections.

4.13.5.7.7. JEIM Test Cell Preparation Worksheet. This worksheet contains a list of items/tasks to be accomplished by JEIM prior to sending an engine to the test cell. As a minimum, document the following: an inlet and exhaust FOD inspection, any pre-run servicing required, cap open lines, cannon plugs, engine intake and exhaust. Also document a thorough tool inventory and an inspection for loose hardware. The section supervisor will document a review of the work folder to ensure that maintenance performed or required actions are documented.

4.13.5.7.8. Test Cell Pre-run Worksheet. Test cell personnel will complete this form prior to an engine run. At a minimum, form will include the following headings: Engine TMS, Engine Serial Number, EOT/Cycles, JCN, Remarks, Pre-run Emergency Briefing Accomplished with (run Supervisors Name, Signature and Date sections), Inspection with (Area, Employee Number and Date sections). **NOTE:** At a minimum, Area section will include: Inlet FOD/FO, Exhaust FOD/FO, Engine Exterior and FO, General Engine Serviceability, Test Stand/Thrust Bed/Test Equipment for FO, CTK Inventory C/W, Engine Servicing Check, All preliminary engine

installation and run requirements C/W, serviceable fire extinguisher on hand. Each area section will have the performing technician's employee number and date accomplished annotated.

4.13.5.7.9. Test Cell Post Run Worksheet. This form is used to document items/tasks accomplished by test cell personnel after engine run. At a minimum, this form will include the following headings: Engine TMS, Engine Serial Number, EOT/Cycles, JCN, Maintenance Actions Performed, Test Cell Supervisors Post-run Review with (Name, Signature and Date sections), Inspection with (Area, Employee Number and Date sections). **NOTE:** At a minimum, Area section will include: Inlet FOD/FO, Exhaust FOD/FO, CTK Inventory C/W, Post-Run OAP Samples C/W (if applicable), AFTO Form 350 or AFTO Form 20 Attached, Engine Preservation Type and Date, Throttle Secured to Off Position (if applicable) and Tagged, Cap Open Lines/Cannon Plugs, Install Intake/Exhaust Covers, Servicing Amount, Engine Test Cell Discrepancies Cleared, 7-Level Inspection of Components Replaced or Disconnected, Final Leak Check. **NOTE:** Test Cell personnel will leak-check items not accessible with the engine installed in or on the aircraft prior to leaving test cell. Each area section will have the performing technician's employee number and date accomplished annotated.

4.13.5.7.10. Final Inspection Worksheet. This form is used to document JEIM requirements after repair or testing has been completed. It includes, FOD inspection of intake, exhaust, and external engine; borescope engine (if applicable); ensuring throttle is secured and tagged to "off" position (if applicable); capping, plugging and covering fittings and lines; attaching AFTO Form 350 to lines, fittings or plugs that require "leak check" when installed in aircraft (items not accessible in aircraft must be leak checked on test cell); attaching AFTO Form 350 and/or serviceable tag to engine, ensure supply accounts and MIS entries have been cleared.

4.13.5.7.11. Borescope Worksheets. Ensure borescope inspection worksheets are used for engines requiring borescope documentation.

4.13.5.7.12. Uninstalled Engine/Module Blade Blending / FOD Damage Worksheet. Use to document blade blending, FOD damage for uninstalled engines/modules. As a minimum, worksheet will have the following information: Engine/Module S/N#, Date, Discrepancy, Stage, Corrective Action, and employee #.

4.13.5.8. Process the MICAP start in Mission Capable (MICAP) Asset Sourcing System (MASS); ensure all pertinent data is included. (Applies to commands with a Regional Supply Squadron (RSS).

4.13.5.9. Upgrade, downgrade and cancel MICAP requirements. (Applies to commands with a RSS).

4.13.6. Test Cell and Noise Suppression System (NSS) Section. This section is responsible for testing engines to evaluate the quality of maintenance and engine performance, and accomplish engine preservation. Ensure that inspections, repairs, and corrosion control are accomplished, and records are maintained on noise suppresser systems, test cells, and trim pads, when required

4.13.6.1. In addition to the common element/workcenter supervisor responsibilities outlined in Chapter 2, the NSS element/workcenter supervisor:

4.13.6.1.1. Ensures NSS and test cell personnel accomplish minor maintenance, make adjustments to engines, and document engine condition. The test cell supervisor ensures test cell components are calibrated on site, if practical.

4.13.6.1.2. Briefs maintenance personnel on NSS operating/emergency procedures.

4.13.6.1.3. Ensures the NSS is used to the fullest extent. Open tie-down pads are only used as a secondary system when the NSS is down or to help reduce backlogs.

4.13.6.1.4. Ensure qualified NSS personnel are present whenever the NSS is in use. If required, provides NSS personnel to augment OS deployment requirements.

4.13.6.1.5. Ensures custodial responsibilities are accomplished on all assigned equipment.

4.13.6.2. Qualified personnel from the aircraft's owning squadron will position aircraft on the NSS, prepare aircraft for engine run and accomplish engine run, trim, and troubleshooting.

4.13.6.3. Report Halon 1301 releases in accordance with AFI 91-204, *Safety Investigations and Reports*.

4.13.6.4. Ensures squadron personnel maintain engine test operation records as required for environmental compliance IAW AFI 32-7041 and applicable federal, state, DoD, AF, ANG, installation, and local requirements and guidance.

4.13.7. Small Gas Turbine Engine Section. This section repairs and maintains small gas turbines used in aircraft. In addition to common responsibilities outlined in Chapter 2, the element/workcenter supervisor ensures personnel are qualified to operate small gas turbine engines and test stands. The MXG/CC has the option to reassign these duties, if applicable

4.13.8. Engine Support Equipment Section. This section maintains, manages, and stores engine support and test equipment, including engine stands and trailers.

4.13.9. Propeller Section. This section repairs, builds up, tears down, and modifies propellers, valve housings, pump housings, and associated components.

4.13.10. Module Repair Section. This section, depending on the type of engines supported, performs tear down, time change, maintenance, repair, build-up, and storage of engine modules and components.

4.13.11. Quick Engine Change (QEC) Kit Management. QEC kit removals and installations are coordinated with the SRAN EM and loaded in MIS as a part number-serial number item, reflecting where the kit is installed or spared.

4.13.11.1. In addition to repair cycle procedures outlined in Chapter 8, the technician removing a QEC kit item from an engine completes an AFTO Form 350, enters the reason for removal in Block 14, and annotates the QEC kit inventory for each repairable item. For components removed for heat treating, washing, or sand blasting, technicians will attach a numbered metal tag (if needed) to the item and enter the metal tag number on the AFTO Form 350, Block 15. The metal tag links the item to the AFTO Form 350. Section personnel enter "QEC" in large letters on the AFTO Form 350, Block 15, to identify the item as a QEC asset.

4.13.11.2. Complete the AF Form 596, **Quick Engine Change Kit Inventory** for on repair cycle items and QEC kit unique items when an engine enters the section for tear down. If T.O. requirements restrict reuse of items, the technician marks the AF Form 596 with an asterisk to show that a demand has been placed on supply.

4.14. Test, Measurement, and Diagnostic Equipment (TMDE) Flight. The MXG/CC designates a Test, Measurement, and Diagnostic, Equipment (TMDE) coordinator for liaison

between the unit and the servicing TMDE laboratory. Local OIs will be published to ensure that unit TMDE is controlled, calibrated, repaired, and certified in accordance with (IAW) prescribed directives. A host tenant agreement with the servicing Precision Measurement Equipment Laboratory (PMEL) will be accomplished when required. All TMDE specified as PMEL responsibility in T.O. 33K-1-100-1/2 will be sent to the PMEL for scheduled calibration and repair. Where an ANG Type II PMEL is assigned, the appropriate commander will ensure the PMEL conforms to the provisions outlined in T.O. 00-20-14, *Air Force Metrology and Calibration (AFMETCAL) Program*. ANG Flying units (except those collocated with a Type II PMEL on the same installation) may request authorization from Air Force Metrology and Calibration (AFMETCAL) Det 1 to support their own torque wrenches, by submitting a waiver package through ANG/LGMM, PMEL Functional Area Manager (FAM) with all supporting data IAW T.O. 00-20-14. Calibration responsibility waivers will be considered for "Torque Wrenches Only". Fighter units will assign the torque wrench calibration function to the Avionics Intermediate Shop (AIS)/Intermediate Automated Test Station (IATS), and Airlift/Tanker units will assign it to the Avionics Guidance and Control Shop. Units receiving approval for a Torque Wrench Calibration Site will comply with all requirements listed in Chapter 18.32.

Chapter 5

MAINTENANCE OPERATIONS FLIGHT (MOF)

5.1. General. The Maintenance Operations Flight (MOF) is responsible to the MXG/CC for aircraft maintenance staff functions required for the efficient operation of the Maintenance Group. This flight normally includes the Maintenance Operations Center (MOC), Plans, Scheduling, and Documentation (PS&D), Engine Management (EM), Training Management, Maintenance Analysis, and Maintenance Plans and Programs. They are responsible to the MXG/CC for overall flight management. Additional common responsibilities are outlined in Chapter 2 of this publication.

5.2. Commander/ Superintendent Responsibilities. Common responsibilities are specified in Chapter 2 of this instruction. Additional areas of responsibility are defined in this chapter and command training instructions.

5.3. Training Management. The maintenance training program ensures that all personnel are qualified to perform their job; and that a balance of skills is maintained for all maintenance personnel. The two elements of the training program are upgrade and qualification training. Upgrade Training (UGT) provides the job knowledge and required skill levels of an Air Force specialty. UGT administration is vested in the individual's supervisor/trainer, training management, and base training manager. Qualification Training is ongoing and designed for individuals to perform their job. Units will locally determine which methods to use to provide qualification training. At local option, Training Management may be placed into Quality Assurance. In either case, the responsibilities outlined below will remain the same. Training Management:

5.3.1. Responsibilities of Training Management are:

5.3.1.1. Perform duties specified in applicable Air Force and ANG 36 series directives.

5.3.1.2. Serve as the single point of contact for all training matters affecting maintenance, including outside agencies such as disaster preparedness, environmental flight and the training detachment (TD).

5.3.1.3. Controls and maintains visual information programs and associated equipment.

5.3.1.4. Coordinate training requests conducted by Air Force engineering and technical services (AFETS)/contractor engineering and technical services (CETS) as listed in AFI 21-110, *Engineering and Technical Services*.

5.3.1.5. Provide a monthly status of training (SOT) briefing to the group/squadron/flight commanders, and/or directors.

5.3.1.6. Coordinate requests for formal training, publishes class schedules, and maintains the applicable management information system training subsystem.

5.3.1.7. Serves as liaison between aircraft maintenance AFSCs and the Base Training Office, ensuring upgrade training and qualification training programs are conducted according to AFI 36-2201, AFI 36-2232 and ANG instructions.

5.3.1.8. Establish a monthly training schedule that will not adversely affect the maintenance

production effort, but will ensure the availability of personnel, facilities, and training devices to accomplish training requirements.

5.3.1.9. If requested notify GP and SQ commanders of deviations to the published monthly training schedule, to include: no shows, walk ins, class cancellations, etc.

5.3.1.10. Manages the testing program. Tests (may be automated) will be controlled to prevent compromise. Locally developed tests will be monitored for currency and accuracy. Training Management will coordinate with functional areas to ensure a comprehensive annual review is conducted and will update tests when required.

5.3.1.11. Coordinate with the PS&D function for selecting training aircraft. Training Management will forward training requirements in a monthly format (including configuration and time periods) to PS&D by the end of the second week of each month for inclusion in the monthly maintenance schedule. Training requirements will be updated weekly and forwarded to PS&D for inclusion in the weekly maintenance plan. Aircraft down for training more than 7 consecutive days must be carried in an aircraft possession purpose identifier code of TJ. Training Management is responsible for each designated maintenance training aircraft assigned (in conjunction with the operations squadron) to include maintaining aircraft forms and coordinating on- and off-equipment maintenance.

5.3.1.12. Ensure Special Certification Roster (SCR) information is loaded in MIS IAW Chapter 18.

5.3.1.12.1. Ensures the SCR is current.

5.3.1.12.2. Ensures the SCR is coordinated with workcenters, squadron/flight commanders, Quality Assurance, and approved by the MXG/CC.

5.3.1.12.3. Maintains a signed master copy of the SCR and forwards a signed master copy to QA.

5.3.1.12.4. Distributes a copy of the applicable portion of the SCR to each flight.

5.3.1.13. Ensure ancillary training program is established IAW AFI 36-2201, AFI 36-2232 and ANG instructions.

5.3.1.14. Overdue Training. Individual recurring qualifications become overdue on the last day of the month in which recertification is due. When an individual is TDY, on leave, or incapacitated, that person need not be decertified provided the required evaluations are completed within 90 days of the member's return to duty, not to exceed 3 calendar months from original due date.

5.3.1.15. Process and coordinates upgrade Training Waivers.

5.3.2. Evaluation Requirements. Workcenter supervisors evaluate personnel to ensure they possess the required skills to perform and meet the wartime tasking. Additional evaluation and training may be required when equipment has been modified/replaced or when the MXG/CC elects to require special training, evaluation, and certification for the operation of selected powered SE, vehicular SE, or special equipment. Such equipment must be identified in an OI.

5.3.3. Personnel Processing. During in-processing, Training Management and workcenter supervisors will review and evaluate all previous training completions and current workcenter requirements. The individual's training records and requirements will be updated at this time.

During out-processing, Training Management will delete any scheduled training events. Any individual in Upgrade Training (UGT) will be deleted from UGT and a copy of all completed training will be placed in their AF Form 623.

5.3.4. Is responsible for overall management and control of the automated training management sub-system (ATS).

5.4. Engine Management (EM) Section. The EM section monitors engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in MIS, Comprehensive Engine Management System (CEMS), and performs engine manager duties. The EM section is established to more effectively manage the unit efforts to maintain adequate engine support to meet mission requirements. The EM section combines functions that support engine management from separate areas within the wing. The stock record account number (SRAN) engine manager works with and is collocated in the EM section. The EM section will:

5.4.1. Manage CEMS/MIS by following additional guidance found in:

5.4.1.1. AFI 21-104, *Selective Management of Selected Gas Turbine Engines*.

5.4.1.2. AFI 10-201, *Status Of Resources And Training System*.

5.4.1.3. AFI 23-101, *Centrally Managed Equipment*.

5.4.1.4. T.O. 00-25-254-1, *System Manual - Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures*.

5.4.1.5. T.O. 00-25-254-2, *System Manual - Comprehensive Engine Management System for DSD: D042*.

5.4.1.6. T.O. 00-20-5-1-1, *Engine Historical Records F-100-PW-100/200/220 Engines*.

5.4.1.7. T.O. 2J-1-18 *Preparation for Shipment and Storage of Gas Turbine Engines*.

5.4.1.8. AFCSM 21-558, *Comprehensive Engine Management System*.

5.4.1.9. Applicable aircraft -6 T.O.s.

5.4.2. Coordinate with aircraft maintenance, PS&D, and propulsion flight on engines and components, TCIs, SIs, TCTOs, modifications, and ensures TCTOs and TCIs are requisitioned for the EM section IAW guidance found in Chapter 15 of this instruction.

5.4.3. Plan, schedule, and document maintenance actions on assigned engines.

5.4.4. Provide TCI information (cycles remaining, engine operating time (EOT), etc.) on serially controlled items to the propulsion flight and aircraft maintenance for engine and engine component CANN actions.

5.4.5. Ensure all engine flying hour inspections are loaded against the engine, not the aircraft.

5.4.6. Ensure all engine/module inspections tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc. are loaded/tracked in MIS.

5.4.7. Manage TCTOs on all assigned engines and components both installed and removed. Accomplishes quarterly TCTO status reviews and reconciliation's IAW T.O. 00-25-254-1. Complies with TCTO duties and responsibilities assigned to documentation section for engine items as outlined in this publication. Initiates AF Form 2410, **Inspection/TCTO Planning Checklist**, and AF Form 2001, **Notification of TCTO Kit Requirement, for TCTO kits, parts,**

and tools and forwards the AF Form 2001 to the flight service center or LRS. Maintains TCTO folders for engine-related TCTOs. Keeps records on TCTO kits and status on all engines installed in aircraft sent to depot.

5.4.8. Manage time changes on all engines and components, and ensures forecast parts requests are submitted to supply 60 days before the required month of the scheduled time change or JEIM/ERRC induction.

5.4.9. Maintain and update historical documents for all assigned engines, modules, and major assemblies using automated history. **NOTE:** Paper history can be maintained in conjunction with automated history. In addition to T.O. 00-20-5-1 requirements, the following historical entries in automated history are required for serially tracked engines, modules, components and major assemblies:

5.4.9.1. A removal narrative is required for all removal actions. Use the correct Automated History Event indicator when processing MIS transactions to ensure the posting of removal times to automated 95s. Include reason for removal and other pertinent data.

5.4.9.2. Special inspections, occurrences, and all borescopes. Include total time (EOT, TACs, CCYs, etc.), findings (no defect noted, discrepancies noted, etc.) and other pertinent information.

5.4.9.3. The Propulsion Section will provide the Engine Management Section data on engines rejected at the test cell. This data will be routed to the Engine Management Section at the time the engine is returned to JEIM for repair and the data will include, but is not limited to, the reason for the rejection and the time of occurrence. For engines that are accepted at test cell, the data that is required are all repairs, servicing, and if preservation of the engine was required.

5.4.9.4. Field service evaluation (FSE) or modifications. Include total time (EOT, TACs, CCYs, etc.), brief summary of modifications to include part number and serial number of modified items, and other pertinent information.

5.4.9.5. TCTO kit verification validations. Include total time (EOT, TACs, CCYs, etc.), brief summary of modification including part number and serial number of items, and other pertinent information.

5.4.9.6. Ensure transferred engines or major assemblies are accompanied by assigned TCTO kits and the required historical documentation.

5.4.9.7. Receiving/acceptance inspections, transfers and shipment of engines to designated repair facilities for engine, module (uninstalled), and major assemblies (uninstalled). Include total time (EOT, TACs, CCYs, etc.), received or departing from unit, discrepancies, and other significant information.

5.4.9.8. Data corrections. Include corrections to erroneous entries and other pertinent information.

5.4.9.9. Work completed on engine, module (uninstalled), major assembly (uninstalled). Include total time (EOT, TACs, CCYs, etc.), and a brief maintenance summary to include major assemblies replaced, test cell run, engine preservation, annual engine records reviews and other significant information (i.e. FOD).

5.4.10. Provide automated management products and assist with presentation of reports and briefings. Maintain flow charts and production visual aids depicting current end-item status.

(JEIM units only).

5.4.11. Check life-limited components forecast for additional component changes, TCTOs and SIs on all removed engines.

5.4.12. EM, in coordination with the Propulsion Element Supervisor, will develop a detailed 6-month engine and module removal forecast to smooth peaks and valleys in the engine maintenance workload. This 6-month forecast will be accomplished monthly using CEMS product E373.

5.4.13. Publish scheduled engine changes in the monthly maintenance plan (if published) or in the first weekly maintenance plan of the effective month.

5.4.14. Verify engine total time versus aircraft total time, flying hours and manual cycles as applicable) with PS&D during aircraft document reviews.

5.4.15. Maintain (load, delete, and change) the Job Standard Master Listing (JML) or the -6 requirements for engine inspections and time changes.

5.4.16. Establish a CEMS contingency plan for when either or both systems are down for an extended period of time (more than 48 hours). The plan will include, as a minimum, procedures for retaining data in date-time order for input when CEMS operation resumes. The plan will address home station and deployed procedures.

5.4.17. Develop local engine tracking procedures and documentation methods to be used at deployed locations. Procedures will include as a minimum, method of communication (message, e-mail or FAX), documentation and shipping responsibilities with SRAN addresses, CANN and reporting procedures for engine removals. Take immediate action to correct all reporting errors and variances between the base CEMS using the engine manager's data list.

5.4.18. Accomplish unit engine manager duties as prescribed in accordance with AFI 21-104, T.O.s 00-25-254-1/-2, and ANG instructions. Act as liaison with the SRAN engine manager when the EM section is part of a tenant unit and the host unit provides the base engine manager function.

5.4.19. Provide the primary SRAN engine manager all quarterly reporting information required for submission to higher headquarters.

5.4.20. Stock Record Account Number (SRAN) Engine Manager. The MXG/CC appoints a SRAN engine manager (if a host), or a unit engine manager (UEM, if a tenant) to accomplish the duties outlined in this instruction, T.O. 00-20-254-series and AFI 21-104. The SRAN EM is selected from AFSC 2R1X1 or 2A6X1A/B or 2S0X1 with a 7- or 9-skill-level. The assistant, as a minimum, will be a 5-skill level from one of the above AFSCs. The SRAN EM and assistant are aligned under the EM section. The SRAN engine manager will:

5.4.20.1. Advise SQ/CC and MXG/CC on administering the base engine management program, on engine logistics concepts, principles, policies, procedures and techniques, and acts as single point of contact between the unit and the ANG/LGMM for engine management questions.

5.4.20.2. Establish written procedures to support engine management responsibilities IAW AFI 21-104 and this instruction. Provide inputs for ANG supplements to T.O.s 00-25-254-1 and 00-25-254-2. The unit procedures to AFI 21-104 and this instruction designates responsibilities to ensure accurate and timely reporting to CEMS, including TCTO, TCI, and documentation

requirements (borescope inspections, blade blending, CANN actions, etc.). Data (engine, module, and component) is reported to EM no later than 0900 of the next business day after the transaction occurred (e.g., part removal, installation, time update, TCTO status change, etc.).

5.4.20.3. Establish local procedures to detect and resolve missing sequence numbers.

5.4.20.4. Establish local procedures for the handling of engines, augmentors, and QEC kits.

5.4.20.5. Request initialization decks (I-Deck) from CEMS central database (CDB) and ensures data in MIS mirrors the CDB.

5.4.20.6. Ensure deployed engine monitors are assigned and trained to perform engine manager and monitor duties while deployed. Engine monitor will ensure all deployed spare engines have a copy (paper or electronic) of CEMS product E407, option 1 and 4, included in the deployment package.

5.4.20.7. Verify that all update transactions (e.g., times TCTO, part removal and installations) are input before reporting an engine removal or installation.

5.4.20.8. Perform periodic quality audits to monitor accuracy and timeliness of reporting.

5.4.20.9. Perform annual EM training for all affected personnel (back shop, test cell, flightline, aircraft maintenance scheduler, etc.) who report engine status, or are responsible for engine documentation and scheduling IAW AFCSM 21-558, Vol 2, AMCI 21-112, T.O. 00-25-254-series and T.O. 00-20-5-1-series.

5.4.20.10. Maintain a jacket file of shipping documents for engine shipments and receipts. Obtain command EM approval prior to returning engines to depot or two-level maintenance.

5.4.20.11. Perform duties and requirements for engine shipments and receipts according to AFPD 24-2, *Preparation and Movement of Air Force Materiel*, AFI 21-104, and T.O.s 00-85-20, 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*, 2R-1-11, and 2-1-18.

5.4.20.12. Ensure engines are prepared for shipment according to T.O. 2J-1-18, and T.O. 00-85-20, Engine Shipping Instructions, and place them in airfreight area within 72 hours after the engine change is completed. Notify ANG/LGMM engine management and the owning SRAN if this time frame can't be met.

5.4.20.13. The SRAN EM will report the following to CEMS:

5.4.20.13.1. Receipt transaction of engines as of the date and time engines are delivered from the transportation hold area and accepted at the JEIM facility.

5.4.20.13.2. Shipment transactions with the as of date and time the engine/s physically leave the base.

5.4.20.13.3. All engine and tracked item removals, installations, and engine status changes.

5.4.20.13.4. All engine status transaction removals, installations, gains, engine-not-mission capable for supply (ENMCS), work completed, test cell rejects, work stopped, work started, change in level of maintenance, awaiting disposition, intra-Air Force receipt and intra-Air Force shipments, transfer, and HOW MAL codes IAW AFI 21-104 and T.O. 00-25-254-series.

5.4.20.13.5. For engines removed status codes LF, LB or LG, then determination is made to ship the engine to depot or induct in 2LM repair, process an "ML" transaction. Refer to T.O. 00-25-254-1 for CEMS codes guidance.

5.4.21. Ensure that command-directed modifications and rescissions requiring decompliance work are accomplished.

5.4.22. Coordinate with LRS to ensure requirements for Engines Not Mission Capable-Supply (ENMCS) are accurately reported and promptly requisitioned.

5.4.23. Check the non-installed spare engine historical preservation record IAW T.O. 2J-1-18.

5.4.24. Ensure comments on the status of engines in unserviceable categories (INW, AWP, AWM) are entered into the information analysis web site (GUARDIAN) daily. The web site address is: <https://guardian.drc.com/Main/Home.asp>.

5.4.25. Forecast life limit change requirements resulting from analysis of life limit data and engine time change/inspection requirements and engine historical document files.

5.5. Not Used.

5.6. Plans, Scheduling, and Documentation (PS&D).

5.6.1. PS&D develops the maintenance plan using aircraft historical data from the automated maintenance system input by all maintenance personnel. The accuracy of entries in the automated maintenance system affects the development of that plan and is a basic responsibility of all unit personnel. All duties of the PS&D section are outlined in Chapter 15.

5.7. Programs and Deployments.

5.7.1. If established, the program and mobility section manages the manning, facilities, and deployment functions for the group.

5.7.2. Programs Section is responsible for overall management and control of the personnel management subsystem.

5.7.2.1. Develop, maintain, and coordinate all AFI-directed programs and plans affecting maintenance.

5.7.2.2. Act as resource advisor to MXG/CC.

5.7.2.3. Conduct staff assistance visits (SAV) within the group to assist each maintenance functional area.

5.7.2.3.1. SAV visits will administratively evaluate a unit's ability to deploy IAW the DOC statement.

5.7.2.3.2. SAV visits will be conducted at least once a year and documented. Units will retain documentation until the next SAV unless repeat discrepancies are noted. If discrepancies are repeated, SAV documentation will be retained until the discrepancies are closed.

5.7.3. Manning Management. Manages manpower and assignments for the group

5.7.4. Serve as focal point within maintenance group for management of facilities and development of the maintenance group communication plan.

5.7.5. Be the focal point for maintenance group mobility planning and execution actions. It coordinates maintenance mobility requirements.

5.7.6. Comply with support agreements IAW AFI 25-201.

5.7.7. Be responsible for developing/coordinating maintenance group maintenance commercial

contracts unless the MXG/CC has determined another office of responsibility.

5.7.8. Develop a plan to report suspected aircraft tampering or intentional aircraft damage, in coordination with the operations group, security police, and command post.

5.7.9. Monitors SORTs reporting for the MXG.

5.7.10. If designated as a UTC Pilot Unit:

5.7.10.1. Coordinates with Wing Plans and those other UTC tasked units on cargo and equipment authorizations/requirements in order to develop and maintain a standardized package, which meets the specific mission capability requirements.

5.7.10.2. Coordinates with Wing Plans and the Allowance Standard (AS) monitor for that UTC on equipment changes and new equipment requirements.

5.7.10.3. Assists with site surveys of deployment locations.

5.7.11. Assists units in interpreting guidance for marking/packing/marshaling of tasked equipment according to AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*; AFMAN 10-401, *Operations Plan and Concept Plan Development*; and AFMAN 91-201, *Explosive Safety Standards*.

5.7.12. Assists the deployed senior maintenance representative with site surveys.

5.7.13. Coordinates with Wing Plans to compile the data necessary to implement and maintain the deployment database.

5.7.14. Reviews all operations plans requiring support from the aircraft maintenance complex.

5.7.15. Coordinates maintenance planning actions in support of all aircraft maintenance plans with concerned activities.

5.7.16. Maintains personnel and equipment rosters, applicable plans, and checklists required to deploy aircraft maintenance personnel and equipment.

5.7.17. Ensures personnel readiness folders (if used) are maintained.

5.7.18. Prepares and submits financial requirements for inclusion in the base financial plan and operating budget. Coordinates with each cost center to assess financial needs. Advises the MXG/CC on the distribution of the operating budget. Analyzes past expenses, current expenses, and programs to project the financial requirements.

5.7.19. Monitors the status of expenses to include Depot Level Repairables (DLR) by cost center and briefs the MXG/CC of unusual expenditures that may impact the unit's financial condition. Reviews financial status to ensure each cost center receives equitable and necessary base-funded materials and services.

5.7.20. Evaluates trends and operating costs, which are used in projecting commitments and obligations.

5.7.21. As required, provides training to the cost center managers.

5.7.22. Maintains a current copy of the Maintenance manning documents.

5.7.23. Initiates/coordinates on all personnel assignments and change requests. Monitors critical AFSCs. Ensures assigned personnel are properly loaded in the personnel data system.

5.7.24. Is familiar with all Maintenance facilities. On an annual basis determines if existing facilities are suitable for the activities to which they are assigned.

5.7.25. Serves as the focal point for the management of facilities and development of the master aircraft-parking plan in coordination with the Airfield Manager. Include tenant unit parking plan in the host unit's master parking plan. Coordinates on all work requests for new construction or alteration to existing facilities. Coordinates all facility requirements with affected agencies.

5.7.26. Is the focal point for Maintenance inputs to support agreements.

5.7.27. Conducts staff-assist visits, and documents, at least annually, to each maintenance shop to assist with financial management, personnel management, facility management, and deployment planning.

5.7.28. Monitors and validates all telephone installation requests, if applicable.

5.8. Maintenance Data Systems Analysis (MDSA) Section.

5.8.1. Maintenance Data Systems Analysis (MDSA). The primary purpose of the MDSA is to track, analyze, and present information to help senior leadership assess the health of the units' weapon systems and equipment. Maintenance Analysts are highly trained statisticians with a wide range of knowledge-based skills geared to the investigation of problem areas. MDSA must seek every opportunity to educate leadership on the services available. Numbers by themselves rarely tell a complete story, so it is imperative maintenance leaders work very closely with MDSA to uncover driving factors. The best analysis will flourish in a unit where senior leaders challenge the MDSA section, and maintainers at all levels are involved in the analysis process.

5.8.2. The MDSA section manages maintenance information systems and performs analyses to assess and improve unit performance (i.e., effectiveness, and efficiency of unit resources, and logistical support processes). Maintenance information systems (MIS) are the foundation for data pertaining to utilization and expenditure of unit resources. These systems provide the main source of information used by analysts to assess unit's performance and capability. CAMS/G081 and REMIS / Electronic Data Warehouse (EDW) are the prime sources of data.

5.8.2.1. The MDSA section provides support to MXG. Like Quality Assurance, the MDSA must have direct access to MXG/CC to ensure negative and positive information affecting unit health is not filtered in any way.

5.8.3. Personnel Qualification. Analysts will be familiar with the functions and responsibilities of the maintenance organization and must have a basic understanding of the equipment maintained by the unit. The MDSA element/workcenter supervisor will ensure each analyst assigned attends a local familiarization course for 2R0X1 personnel. As a minimum the course will include weapon system/Communications Electronics (CE) familiarization, flightline and shop operations, organizational structure and roles of each group, squadron, and flight. Analysts will attend the course within 6 months of assignment to the unit.

5.8.3.1. Each MDSA section may maintain a current set of 5 and 7 Level Career Development Courses as these contain the primary source of technical reference material for Analysts. MDSA should maintain additional books, tutorial and computer programs to enhance statistical and presentation capabilities. The requirement to maintain the CDC material is optional for contract and civil service organizations.

5.8.4. MDSA Team Concept. Using MIS data gathering, research, and investigation, MDSA

teams identify problem areas for additional study. Deficiency Analysis/Quality Assurance assists by providing in-depth technical expertise. The MDSA team will present the MXG leaders with completed studies focusing on the cause and effect of problem areas, to include recommendations for course(s) of action as appropriate.

5.8.5. MDSA Section Responsibilities. Analysis personnel must establish sound working relationships with all unit personnel through constant communication and frequent visits to workcenters. Analysis must be customer oriented and provide assistance to all unit personnel in the area of maintenance management information systems, data extraction and interpretation. The two major responsibilities of analysis are (1) analyzing and assessing unit and weapon system performance and (2) managing the MIS. To enable maximum responsiveness and effectiveness to maintenance requirements and allow broader awareness of the maintenance environment, when feasible (based on manning, skill levels and at the discretion of the Chief of MDSA) Analysts can be located in the squadron. When analysts are located in the squadron they will still work directly for the Chief of MDSA, who will provide their training, monitor the quality and relevancy of their workload. The following is a listing of key analysis responsibilities and is not an all-encompassing list: At local option, Management Analysis function may be placed into Quality Assurance. In either case, the responsibilities outlined below will remain the same.

5.8.5.1. Processes and maintains maintenance database records (this does not infer input). Other than data maintenance, analysts will under no circumstances alter source data in MIS.

5.8.5.2. Reviews data for anomalies and identifies areas requiring further study.

5.8.5.3. Provides presentations, reports, studies/analyses, and briefings as requested or deemed appropriate.

5.8.5.4. Provides information on analysis services and capabilities to unit supervision.

5.8.5.5. Assists unit leaders with the application and interpretation of maintenance data.

5.8.5.6. Coordinates with PS&D and production leaders to provide monthly airframe, facility and personnel capabilities (as required), attrition, and spare factors for use in planning the annual flying program. Compute attrition and spare factors IAW ANGP 21-103.

5.8.5.7. If applicable, provides CSSM (Combat Supply Support for Maintenance) with data and information for input into the Intermediate Repair Enhancement Program (IREP). When available, a Deficiency Analyst will participate in the IREP to help identify and analyze problem areas.

5.8.5.8. Analyzes equipment performance trends to identify problems affecting the unit mission.

5.8.5.9. Ensures timely submission of data to meet ANG reporting suspenses and ensures the validity of data submissions. Works with the maintenance senior maintainers on all comments written to explain the meaning of the data presented. MDSA must work very closely with leadership to ensure the sources of problems are identified. The data alone cannot tell the whole story.

5.8.5.9.1. Verifies accuracy of the job data documentation (JDD) subsystem of MIS. Validates data entered into MIS and informs affected agencies of discrepancies. MDSA will identify erroneous or missing data to the responsible agency for correction or completion. MDSA will not correct or enter data into a MIS. This is not considered part of the Data Integrity Team

process.

5.8.5.9.2. Individuals/agencies initiating the input(s) are responsible for its accuracy and completeness. Key decisions are based on logistics information extracted from MIS. Maintaining the integrity of this data is paramount. Deployments, local exercises, and other conflicts do not alleviate the requirement for input and accuracy.

5.8.5.9.2.1. For units with deployment commitments, MDSA will assist in developing specific procedures for the deployment of the MIS related hardware and software. Where necessary, MDSA and the deploying squadron will work with the Communications Squadron to develop contingency procedures for ensuring connectivity of the MIS where none exists. These procedures must be reviewed prior to any deployment to determine if they will need modification for unique factors. All procedures must take into account unit suspenses for recurring RCS reports to the headquarters. Deployments are not a legitimate reason for missing or erroneous data.

5.8.5.9.3. Analysis personnel on deployments are responsible for obtaining a connection to the MIS database through local area network or a dial up connection. It is vital that a connection to the MIS be established before beginning flying operations. Deployed analysis personnel will also ensure that aircraft status; flying hours, inventory, scheduling and deviation information, and discrepancy data is entered at the deployed location. Contact ANG/LGMM analysis at least 30 days before deployment for MIS connection instructions. The primary responsibility of Analysis personnel is to ensure connection to the MIS, provide statistical analysis, and ensure maintenance and flying data is captured during the deployment.

5.8.5.9.4. Controls the assignment of unit workcenter and mnemonic codes. Coordinate with the Programs Section on the assignment of alpha numeric and workcenter codes. Publishes written guidance to control these codes. Uses multiple mnemonic codes within a workcenter code to accommodate different AFSCs assigned. This enables the workcenter supervisor to tailor training requirements loaded to the workcenter training requirement record (WCT) by AFSC. Coordinates new or revised mnemonic codes with affected activities for planning purposes. For G081 units, AMC will publish guidance on workcenter mnemonics and only one mnemonic will be assigned per workcenter.

5.8.6. Maintenance Information Systems (MIS). MIS consists of CAMS, G081, REMIS, EDW, and CEMS. For management of CAMS and REMIS, follow AFCSM 21-series, AFCSM 25-524, REMIS, ANG and unit procedures, and REMIS user manuals. Personal computers and software used as "stand-alone" systems are not considered MIS and will not be managed by MDSA, with the exception of desktop systems required by the MDSA section. However, when these systems are connected to a MIS via LAN (i.e. using TELNET or INFOCONNECT), they become defacto "smart terminals" for the MIS they interface with; are subject to any parameters, conventions, and publications affecting the MIS; and will be certified and accredited in accordance with AFI 33-202, *Computer Security* and AFI 33-115, Vol 1, *Network Management*.

5.8.6.1. Core Automated Maintenance System. CAMS is an integrated production and management information system. The system interfaces with SBSS at base level. The MDSA section has overall responsibility for system database management. Workcenters throughout the organization manage those applications and functions applicable to their environment. The integrated application in CAMS requires close coordination between on-equipment and off-equipment workcenters and the staff.

5.8.6.2. The Standard Systems Group (SSG) at Maxwell AFB Gunter Annex, Alabama, is the Air Force agency responsible for hardware configuration and software changes in CAMS. Air Force Materiel Command's Modernization System Group (MSG) is responsible for REMIS. CAMS software modifications are submitted on AF Form 3215, **Communications-Computer Systems Requirements Document**, IAW AFCSM 21-566, Vol 2. The MDSA section and ANG/LGMM review proposals prior to presentation to the Configuration Review Board (CRB). For issues involving the base LAN or communications lines, the host DBM must coordinate with the Communications Squadron.

5.8.6.3. The MDSA element/workcenter supervisor ensures trained database managers have the capability to support processing requirements for CAMS. Training may be obtained through the local communications squadron, AETC specialized courses or contractor training.

5.8.6.4. The MDSA section assists CAMS users in developing procedures for collecting information from deployments and exercises where CAMS is not available. Options available are:

5.8.6.4.1. Use a CAMS compatible modem and microcomputer to interface with the home-station mainframe computer via commercial telephone lines or DDN.

5.8.6.4.2. Accumulate hard copy documentation of CAMS screens or locally approved means for input by workcenters upon return to home station or mail delivery for extended deployments only when all other options have been exhausted. Manual documentation is the last resort for collecting data.

5.8.6.5. Managing the CAMS Data base. MDSA provides management control of the CAMS data base. The DBM responsibilities are as follows:

5.8.6.5.1. Manages the use and structural integrity of the CAMS database.

5.8.6.5.2. Ensures CAMS security is maintained in accordance with AFI 33-202, and AFI 33-115, Vol 1.

5.8.6.5.3. Controls and monitors the operation of CAMS.

5.8.6.5.4. Provides expertise on CAMS for resolution of problems beyond the workcenter's and sub-system monitors' control.

5.8.6.5.5. If applicable, provides support to tenant users and establishes MOAs.

5.8.6.5.6. Coordinates with the Defense Mega Center (DMC), Air Force (Base) Network Control Center (AFNCC), (BNCC), or Regional Processing Center (RPC) on all matters concerning CAMS and with ANG/NOC and ANG/ROC when applicable. The DBM has sole responsibility for coordinating with DMC or RPC. Deviations from this policy must be clearly stated in local OIs and published by the host GP/CC.

5.8.6.5.7. Ensures the DMC or RPC supports all requirements concerning the operation and maintenance of CAMS.

5.8.6.5.8. Coordinates with other users and the DMC or RPC to schedule periodic saves of CAMS files to prevent loss of data caused by computer failure. Scheduled saves should cause the least possible interruption to CAMS users.

5.8.6.5.9. Notifies affected users if errors are found.

5.8.6.5.10. Coordinate with the DMC or RPC and CAMS users to schedule routine Preventative Maintenance (PM) to ensure it will have the least impact on the unit (when the system is least used).

5.8.6.5.11. Develops procedures and acts as the prime agency for reporting all suspected CAMS hardware failures. If failures are reported, determines whether an operator error or hardware failure has occurred. This responsibility may be decentralized into the squadrons of CAMS units.

5.8.6.5.12. Coordinates with other users and the DMC or RPC on loading of new releases, special programs, and changes to programs.

5.8.6.5.13. Coordinates and/or publishes scheduled CAMS downtime.

5.8.6.5.14. Ensures CAMS users are aware of problems relating to their subsystems through sub-system monitor notification, including all releases and system advisory notices (SAN).

5.8.6.5.15. Maintains the System Advisory Notice (SAN) file.

5.8.6.5.16. When applicable, coordinates with subsystem managers, tenant users, and Remote Job Entry Terminal (RJET) sites on monthly maintenance of the CAMS database (i.e., Delete History NFS120 and JDD Delete History NFS760). These utilities are run monthly. A schedule will be produced to allow the least impact on other system users. Schedule periodic saves of CAMS files to prevent loss of data caused by computer failure. Scheduled saves will be done to cause the least possible interruption to CAMS users.

5.8.6.5.17. Notifies other CAMS users and subsystem managers of unscheduled downtime status as soon as possible. When an extended computer outage occurs, DBMs notify sub-system managers of computer off-line time and determine if manual backup procedures are necessary to input data.

5.8.6.5.17.1. When CAMS is unavailable, the DBM, subsystem managers, and squadron personnel will implement manual backup procedures for accumulating CAMS data. The data will be updated in CAMS when the system becomes available. Manual procedures include documentation on paper copies of CAMS screens, AF Forms 1530, **AFTO Forms 349, Maintenance Data Collection Record**, and Sortie Maintenance Debriefing forms.

5.8.6.5.17.2. The host DBM will develop and publish local OI detailing manual documentation procedures.

5.8.6.5.18. Coordinates with other functions to ensure continuity of events taking place in CAMS including procedures for background products. When possible, backgrounds are processed during times of least on-line system use. The DBM recommends options to reduce background products, by encouraging users to use on-line capabilities of CAMS. The DBM will control the use of background products to ensure the maximum benefit with the least interruption to the system response time.

5.8.6.5.19. Controls and distributes local unit CAMS products after processing is complete.

5.8.6.5.20. Reviews system response times and takes action if required. The ANG/LGMM system response time standard is 5 seconds. System response time exceeding 10 seconds should be reported to the unit's DBM then up channeled to ANG/LGMM.

5.8.6.5.21. Notifies ANG/LGMM of extended unscheduled computer downtime (over 4 hours),

or when experiencing problems beyond the capabilities of the unit's DBM. Units experiencing problems beyond the capabilities of the host DBM will notify the platform manager or the alternate.

5.8.6.5.22. Has access to the tools required to manage the CAMS database in the host unit. The database managers must have a password with access to TIP and Demand. The password must have access to a DA1A account for DBE/IQU and access to a J51A account for QLP-update added to the HOST DBM user ID index. The database administrator (DBA) at the DMC, RPC, or BNCC will then add the users ID to a system account. The DBM will have access to programs required to manage the CAMS database in the host unit, which will include: ACOPY, SUPUR DSKUTL, EZLOAD (FAS privileges) PSURB, STAR (read only) and UDSMON.

5.8.6.5.22.1. QLP with update on demand pending approval of (the DMC and RPC).

5.8.6.5.22.2. Database Look (DBL).

5.8.6.5.22.3. Console monitoring (CONS) with display option.

5.8.6.5.22.4. QLP report writer. Individual analysts not directly associated with database management are still required to receive training in QLP report writer, on-line inquiries, and conversational commands to obtain nonstandard data from the CAMS database to perform analysis duties. This training will be documented on an AF Form 797, **Job Qualification Standard Continuation**, and included in the Analysts' AF Form 623, **Individual Training Record**.

5.8.6.5.23. Initiates NDA500 or set-verify to identify and isolate database errors and attempt correction through use of database editor (DBE) or QLP with update, IQU, or IPF. These utility programs are run monthly. Coordinates system off-line time to accomplish set-verify with the DMC or RPC and subsystem users to minimize off-line time.

5.8.6.5.24. Notifies affected users if errors are found in the CAMS database and takes prompt action to correct the errors.

5.8.6.5.25. Ensures proper use and control of the database fix keys provided by the gaining MAJCOM and FAB

5.8.6.5.26. Coordinates and controls recovery procedures for CAMS.

5.8.6.5.27. Controls and monitors submissions of CAMS Difficulty Reports (DIREP), and Command, Control, Communications, and Computers (C4) system requirement documents, and suggestions for CAMS evaluations.

5.8.6.5.28. Coordinates on matters pertaining to the interface of other automated systems with CAMS.

5.8.6.5.29. The DBM will develop and follow a checklist in case of the loss of an aircraft. Regardless of the time or day of week, the DBM (or alternate) will be contacted to immediately put the CAMS in File Update Mode (FUD) until the checklist can be completed.

5.8.6.6. CAMS/REMIS System Security. The DBM ensures that system security is maintained by performing the following responsibilities.

5.8.6.6.1. Control access to specific CAMS programs and subsystems by utilizing TRIC security. Specific TRICs or options within TRICs will be restricted by the DBM on request from

the subsystem manager or when the DBM deems it necessary. TRIC security capabilities can be delegated to the subsystem and/or squadron personnel for updates.

5.8.6.6.2. Ensures CAMS subsystem managers are informed of the status of applicable transaction identification codes (TRIC) prior to turning the TRIC on or off. In circumstances where a particular TRIC code is turned off for extended periods of time, the DBM notifies their ANG/LGMM and gaining MAJCOM counterpart, providing rationale for leaving the TRIC in the off status.

5.8.6.6.3. Develops methods preventing unauthorized use of CAMS/REMIS equipment and data within the purview of AFI 33-332, *AF Privacy Act Information* and AFI 33-202. Ensures proper control of CAMS/REMIS passwords. Specific instructions for REMIS passwords are as follows:

5.8.6.6.3.1. MDSA is the focal point to monitor user/id request forms. Forward completed forms to ANG/LGMM.

5.8.6.6.3.2. Provide ANG/LGMM via message/e-mail, the name, rank, office symbol, and phone number of the focal point as changes occur.

5.8.6.6.3.3. Maintain a listing of locally assigned REMIS users and provide updates to add, change or delete REMIS users upon assignment, separation, or retirement.

5.8.6.7. Responsibilities for Workcenters Using CAMS. Workcenter responsibilities are listed throughout this instruction.

5.8.6.8. CAMS Subsystems Managers. Each CAMS subsystem is controlled by a specific subsystem manager who ensures using personnel are qualified to use the respective subsystem of CAMS and are current with AFCSM 21- series manuals. Subsystem managers and their alternates will be identified by letter of appointment from the responsible agency. Personnel using CAMS will work problems beyond their scope with the subsystem managers first. If the problem still cannot be resolved, the subsystem manager will elevate it to the DBM. Each subsystem manager reports hardware/software problems to the unit DBM, assists the maintenance training in developing and conducting familiarization courses for CAMS users, monitors access to their subsystem via TRIC security and approves/disapproves requests for TRIC access for users and forwards to DBM for processing. The following list assigns functional responsibilities for the various CAMS subsystems:

5.8.6.8.1. MDSA is responsible for the overall management of the Job Data Documentation (JDD) subsystem.

5.8.6.8.1.1. Provides overall management and control of the maintenance deferred code listing. Changes to the table will be coordinated with PS&D.

5.8.6.8.2. PS&D section is responsible for overall management of aircraft operational events, special inspections, time changes, TCTOs, aircraft equipment transfer, Generic Configuration Status and Accounting Subsystem (GCSAS), and aircraft inventory changes. See PS&D responsibilities for specific responsibilities.

5.8.6.8.3. Comprehensive Engine Management System (CEMS) Engine Tracking/Engine Documentation Section is responsible for overall management and control of scheduled/unscheduled engine maintenance events concerning engine inspections and time changes, engine TCTOs, engine equipment transfers and engine status.

5.8.6.8.4. MOC is responsible for overall management and control of the location subsystem and aircraft status reporting (CAMS/REMIS corrections).

5.8.6.8.5. Avionics Section is responsible for overall management and control of the Automatic Test Reporting System (ATERS) (CAMS/REMIS corrections).

5.8.6.8.6. Egress Section is responsible for overall management and control of the egress configuration management. (CAMS/REMIS corrections).

5.8.6.8.7. Maintenance Training is responsible for overall management and control of the training management sub-system.

5.8.6.8.8. Programs Section is responsible for overall management and control of the personnel management subsystem.

5.8.6.8.9. QA is responsible for overall management and control of the deficiency reporting (DR) sub-system, if applicable.

5.8.6.8.10. MSL (if applicable) is the liaison between CAMS and LRS. System problems concerning supply transactions i.e., supply rejects, reports, are brought to attention of the MSL for correction of Difficulty Reporting (DIREP).

5.8.6.9. Tenant Support, if applicable. The host DBM provides CAMS technical support to tenant users to assist them in maintaining their unit's database. The DBM ensures that all tenant users are supported. DBM support requirements will be identified in a Memorandum of Agreement or the Host Tenant Support Agreement. Refer to AFI 21-103, Chapter 6, *Communications-Electronics (C-E) Status and Inventory Reporting, for maintenance analysis and host database manager responsibilities in support of the C-E maintenance community*.

5.8.6.10. Maintenance Automated Products (Nonstandard MIS Products). The use of computerized products from the CAMS/G081, REMIS, and EDW (Enterprise Data Warehouse) systems are major sources of information for maintenance data systems analysis. All MDSA personnel will receive training to enable them to make maximum use of these systems. This training will be documented on an AF Form 797, and included in the Analysts' AF Form 623.

5.8.6.10.1. Query Language Processor (QLP) and Integrated Query Utility (IQU) allow retrieval of information from CAMS database files. These utilities are intended to provide nonstandard data and report formats for specific uses and update or change database information.

5.8.6.10.2. REMIS-TALK and Business Objects for EDW are data retrieval system available to analysts for data extraction used similarly to QLP. This retrieval system is used to extract information from the REMIS system on Equipment Inventory, Multiple Status and Utilization Reporting Subsystem (EIMSURS), Product Performance Subsystem (PPS), and Generic Configuration Status and Accounting Subsystem (GCSAS) and the Debrief Subsystem.

5.8.6.11. Documentation Accuracy and Completeness. The management information requirements of the unit are generally fulfilled by analyzing data collected through standard Air Force MIS systems. All personnel in the unit are involved to some extent in the documentation, processing, review, retrieval, or application of maintenance data. The data entry made by a technician becomes an element in a database used for management decision-making within the wing, ANG, and AF. If that entry is incorrect, incomplete, or is later found to be entered in error, the database is impaired to that extent. Consequently, decisions made based on that data are less sound. Unit managers and production personnel are responsible for ensuring accuracy

and completeness. When documentation is accurate, unit managers and logisticians have the means to improve equipment, program for spares, and allocate resources to the best effect. Data integrity is the responsibility of every member of the unit. Subsystem monitors are responsible for ensuring the accuracy of their subsystem. This can be accomplished by pointing out errors or problems to appropriate workcenter supervisors. Database Managers can provide assistance when the problem is beyond the technical expertise of the subsystem manager.

5.8.6.12. Data Integrity Teams/Group (DIT/DIG). The purposes of the DIT include: (1) ensuring the unit has complete and accurate data in the MIS and aircraft forms (to include all inputs made by staff agencies), (2) identifying and quantifying problems within the unit preventing complete and accurate documentation, (3) identifying and correcting the root causes for poor data integrity, and (4) educating the unit on the critical need for data integrity. The DIT/DIG teams are established to evaluate/isolate/eliminate documentation problems in CAMS/G081. All units will establish a DIT/DIG. MDSA is the OPR for the team and is not responsible for identifying or correcting errors. The DIT/DIG will include at least one representative from each squadron that repairs aircraft, and participation from PS&D, the MOC, the CSSM, EM, Debrief, and QA on an as needed basis, as determined by the MDSA. The DIT will meet monthly. Representatives will be at least 5-levels and familiar with the unit's assigned weapon system(s). As a minimum, the following functions should be performed by the DIT:

5.8.6.12.1. To ensure automated AFTO Form 781A's are being accurately documented they will be compared with data documented, what is in one should be in the other. When the two differ, the responsible workcenter will be charged with an error and have it included in the error rate. Examples include: mismatch of write-up in forms versus CAMS/G081, signed off in forms but not closed in CAMS/G081, or completed in CAMS/G081 but not signed off in forms, no JCN in forms or corrective action in CAMS/G081 does not match what's in forms. A records check doesn't cover this requirement. A minimum of 25 percent of the fleet per quarter needs to be checked.

5.8.6.12.2. Compare all "Not Repairable This Station" (NRTS) actions and turnarounds in CAMS/G081 with those in the Standard Base Supply System (SBSS) to verify that all NRTS actions and turnarounds are documented in CAMS/G081. Work with LRS to resolve all differences in NRTS and turnaround documentation between CAMS/G081 and SBSS.

5.8.6.12.3. Run Maintenance Action Review background report for all work accomplished by squadron and by workcenter.

5.8.6.12.4. Audit report by squadron for workcenter event and corrective action narratives versus coding.

5.8.6.12.5. Identify suspected errors on the report by circling or marking on the report and give report to appropriate squadron for corrections. Identify and count the documentation errors affecting scheduled/unscheduled maintenance on equipment identified as REMIS reportable in AFI 21-103.

5.8.6.12.6. Develop a system to keep track of number of errors by workcenter and squadron.

5.8.6.12.7. Establish a suspense method to get corrected reports back to the DIT/DIG. Allow 5 working days maximum.

5.8.6.12.8. Check workcenter utilization to verify that all required maintenance actions are being documented in CAMS/G081. Look for over and under documentation.

5.8.6.12.9. Maintain cumulative uncorrected and corrected error rate databases.

5.8.6.12.10. Analyze the error rate data and prepare reports of rates and identify where errors are occurring.

5.8.6.12.11. Error rates and causes will be briefed to the MXG/CC at least monthly.

5.8.6.12.12. Do not limit scope of DIT/DIG to Job Data Documentation (JDD). Consider tracking error rates for PS&D, MOC, and debrief for ops events cancelled, but not input in CAMS/G081 that cause the flying hour reports to be wrong for sorties and flying hours. Look at ways to track status errors from MOC, and MOC/debriefing errors such as no WUC loaded for a Code-3 PRD, or deviations not loaded correctly.

5.8.6.13. The MXG/CC may establish a CAMS/G081 Users Group, otherwise duties will be performed by the DIT. A CAMS/G081 Users Group will identify user problems, provide on the spot training to correct user documentation problems, and discuss other issues relating to operation of the system. A senior maintenance leader chairs the working group. Meetings are held at least quarterly and are also conducted prior to loading a CAMS release/G081 major program change to ensure all personnel are aware of the changes. An agenda will be published and sent to all workcenters prior to all meetings. Meeting minutes will be published and sent to all workcenters.

5.8.6.14. Maintenance Performance. Primary concerns of maintenance managers are how well the unit is meeting mission requirements, how to improve equipment performance, and identifying emerging support problems, and projecting current trends. Maintenance performance is compared with standards, goals, and maintenance plans. The maintenance scheduling effectiveness rates computed by PS&D and other performance rates computed by analysis are valuable data sources for making these comparisons. When the operational requirements are not achieved, MDSA will perform an investigation to determine the cause. As a minimum the following areas should be considered:

5.8.6.14.1. Are operational requirements realistically based on availability of equipment?

5.8.6.14.2. Causes for flying schedule deviations (cancellations, aborts, additions or early/late takeoffs)

5.8.6.14.3. Are specific aircraft, equipment, systems, or subsystems contributing to a disproportionate share of deviations/turbulence?

5.8.6.14.4. Is specific equipment failing to perform as scheduled? Does this equipment require more or less maintenance than others?

5.8.6.14.5. Are there enough people to meet mission needs? Are certain workcenters documenting significant overtime or show consistently high utilization rates?

5.8.6.14.6. Is there a good balance of skills within AFSCs and between the units?

5.8.6.14.7. Do higher rates for repeat/recur discrepancies indicate training/experience shortfalls?

5.8.6.14.8. Is there sufficient time to schedule and work maintenance problems?

5.8.6.14.9. Are trends significant? Are the trends short term (6 months or less) or long term? Where will the unit likely be in 6-12 months?

5.8.6.14.10. Are there seasonal or cyclical variations? Are current variations outliers?

5.8.6.15. Equipment/Mission Analysis. When negative trends are identified, further investigation may be necessary to gather facts. QA, unit managers, and workcenter technicians should be contacted for assistance in performing these investigations. Consolidate the results in the form of briefings or interim reports, depending upon the seriousness of the trend. The product of these reports should be viewed as indications of the unit's success in keeping equipment mission ready. Consider the following questions when reviewing negative trends:

5.8.6.15.1. Which systems are creating a high not mission capable (NMC) rate? Are these the normally high systems? If so, are they higher than normal? What are the high driving components, and what is being done (or could be done) to address the problems? What factors are causing an increase or decrease in the NMC hours? Are the unit's deployments affecting the rate, if so to what extent?

5.8.6.15.2. Are specific aircraft or equipment causing trend distortions?

5.8.6.15.3. What systems are having high CND and/or repeat/recur malfunctions?

5.8.6.15.4. What parts or components are causing NMCS conditions? Are these normal, or possibly a new problem emerging?

5.8.6.15.5. Are the items repaired on station? Are they 2LM components? Could they be repaired locally?

5.8.6.15.6. Is supply support sufficient and responsive? If not, why not? Are stocks adequate?

5.8.6.15.7. Is the lack of training, technical data, or tools and equipment affecting certain systems or AFSCs?

5.8.6.16. Analytical Process. The analytical process consists of identifying contributory factors, manipulating raw data into meaningful formats, computing management indicators, performing statistical measurements, and creating accurate, complete, and easy to understand presentations. An analytical process uses a number of methods, e.g., visual observation that is dependent upon the experience and knowledge of the observer; comparative analysis that may be performed statistically or visually and involves the comparison of two or more like operations or items to identify variations or differences, and statistical analysis or statistical investigation that is the methodical study of data. These methods are used to reveal facts, relationships, and differences about data and data elements and are a useful adjunct to comparative and visual analysis. Analysts should use these tools and other methods to perform analytical studies to gain insight into unit performance and to enhance process improvement. AFSC 2R0X1 Career Development Course (CDC) is a good source of statistical and analytical techniques, and the MDSA may maintain a current copy of the 5 and 7-level CDC for reference.

5.8.6.17. Management Contributions to the Analytical Process. Operations and maintenance managers have a significant impact on the usefulness of the MDSA to the unit. By challenging the MDSA with analyzing problems affecting the unit, they help not only the unit they will foster the in-depth training of the Analysts. Managers should constantly review how information is being organized and presented. The lack of focus regarding use of data, improper arrangement of data for analysis, or unclear presentations of results can obscure meaningful information. Managers should be familiar with how data is developed, interpreted, and presented to ensure accurate presentations of results for decision-making. Special studies and analyses specifically targeted for areas of concerns to managers are valuable tools in helping units isolate factors surrounding problem areas. Analysts are trained statisticians and investigators, and should be

used in this capacity.

5.8.6.18. Analytical Studies. MDSA will provide results of investigations, analyses, or studies to workcenters. Specific studies are provided to the requester, and a file copy is retained for future reference. Widespread dissemination is achieved by reproducing the study or including it in a monthly maintenance summary.

5.8.6.18.1. The study should state assumptions up front. The study should be summarized in plain English and should state how the significance is measured.

5.8.6.18.2. Although not the only format, most studies will begin with some sort of background information. The study should include the data, research, investigation, and statistical findings, along with their respective sources. Then conclusions relevant to the study should be drawn from the data, research, investigation, and statistical findings. Finally the study should include recommendations to address the conclusions relevant to the problem (other issues uncovered can be identified, but should be kept separate). The most effective study is one that goes beyond superficial conclusions. It helps solve a problem relative to mission performance, and is available for all involved parties to read.

5.8.6.19. Maintenance Analysis Referrals. These are highly affective tools for getting many agencies aware of a common problem. Referrals are simply tools to aid in process improvement and should never be used to attach blame when a process is not working right. A referral is a procedure used to identify, investigate, and propose corrective action for management problems. Referral reports are used to start the referral procedure and document the corrective actions for implementation and future reference. Due to the amount of investigation and research needed to properly process referrals, take care to ensure they are not used for problems that can be resolved more efficiently through verbal or less formal communications. Referrals are not determined by a quota system. They are used only when necessary to affect a permanent solution to a problem that cannot be solved by other means. Referral reports must be concise, accurate, and timely to provide operations and maintenance managers with information for making decisions. Anyone can initiate a referral but MDSA is the OPR and maintains a log of all referrals, assigning a referral number before processing begins. The log should reflect the referral number, initiating agency, date, subject, and action taken. Route referrals through the affected agencies for comments, with the final addressee as the maintenance data systems analysis section. Retain copies and indicate whether additional monitoring or follow-up action is necessary. Provide a completed study to each QA.

5.8.6.20. Base Repair/IREP Program. Monitoring and evaluating the program is an important function of the maintenance data systems analysis section. Analysis of the aircraft maintenance portion of the base repair program and IREP may provide supervisors with the data needed to determine workcenter repair capabilities. Technical Order 00-20-3 contains information necessary for computing repair rates.

5.8.6.21. Unit Maintenance Data Presentations (may be automated). Present data by using summaries, charts, graphs, tabular displays, and narratives. These data presentations should show the relationships among various factors. Data presentations should be displayed or presented in time to be useful in plans or reports. A printed monthly maintenance summary, tailored to the needs of the unit, is an excellent method of presenting data. Presentations should be well constructed, accurate and easy to understand.

5.8.6.22. Prepares a data summary (ANG 7401) for crosstell purposes. The SPOC, in coordination with ANG/LGMM, will specify preparation, frequency, effective date, distribution, and data elements to be reported. Compiles and submits the 7401 report to ANG/LGMM by the 11th working day of each month for the preceding month through electronic spreadsheet or Guardian. Procedural guidance can be found in ANGMAN 21-103, *Management Analysis Policy*.

5.8.6.23. G081 Management. This function manages and coordinates the overall use and development of G081 equipment and programs within the maintenance complex and management of the system to meet unit, ANG and AMC requirements. The G081 management element is responsible for the following:

5.8.6.23.1. Developing and maintaining an OI for local management of G081, which as a minimum contains:

5.8.6.23.1.1. Contingency plans for the support of critical areas during extended computer downtime.

5.8.6.23.1.2. Use of the G081 system during deployments and contingency operations.

5.8.6.23.2. Assisting agencies within the maintenance complex to better utilize G0810.

5.8.6.23.3. Maintaining an up-to-date master copy of all publications pertaining to G081 policies, procedures, programs, and ensuring changes are briefed to all users.

5.8.6.23.4. Ensuring integrity of the database is maintained by limiting user access to authorized workcenters and personnel.

5.8.6.23.5. Assigning USERID/Password access to G081 users. Monitoring and assisting users with LOGIN procedures. Unlocking and resetting passwords as requested by users.

5.8.6.23.6. Acting as approval agency for the MXG/CC or MOF commander on program 8033 off-base messages.

5.8.6.23.7. Trouble Reporting. G081 management is the primary point of contact (POC) for reporting all G081-related problems. Trouble reporting is directed to G081 management element.

5.8.6.23.8. Coordinating with ANG/LGMM personnel concerning hardware and software problems.

5.8.6.23.9. Ensuring all G081 users are informed of downtimes scheduled for preventive maintenance.

5.8.6.23.10. Providing specialized functional or workcenter training to POCs to ensure computer competency at the user level.

5.8.6.23.11. Assisting maintenance activities in the proper application and interpretation of G081 technical publications.

5.8.6.23.12. Troubleshooting and, if possible, solving G081-related problems beyond the capabilities of the functional users. If solving the problem is beyond G081 management capability, identifying the problem to ANG/LGMM for corrective action.

5.8.6.23.13. Ensuring G081 users are aware of problems and corrective actions relating to G081.

5.8.6.23.14. Ensuring that users are aware of problems including System Deficiency Reports (529s) applicable to the functional area by evaluating all recommended F9038 program changes received from other G081 users.

5.8.6.23.15. Coordinating with the MXG/CC or MOF commander and applicable staff organizations on matters concerning interface with associated systems at base level, as directed by ANG/LGMM.

5.9. Maintenance Plans.

5.9.1. The Maintenance Plans (these duties may be in the Programs and Deployments Section) responsibilities are outlined in AFI 36-2129, *Logistics Plans Management*, and include the following:

5.9.1.1. Assists the installation deployment officer (frequently the senior Maintenance Plans officer in the Maintenance Plans flight) in managing the installation deployment program IAW AFI 10-403.

5.9.1.2. Develops a briefing to inform all SNCOs and officers of the wings wartime taskings and Designed Operational Capability (DOC) Statement requirements. The briefing will also cover EAF vulnerability windows.

5.9.1.3. Publishes installation deployment guidance.

5.9.1.4. Manages the wing's Contingency Operations/Mobility Planning and Execution System (COMPES) Logistics Module Base Level (LOGMOD) program.

5.9.1.5. Serves as the focal point for all logistics planning.

5.9.1.6. Administers the wing support agreement program (Maintenance Plans) IAW AFI 25-201. Additionally, serves as focal point for any host nation or third country requests for logistical support.

5.9.1.7. If designated as a UTC Pilot Unit:

5.9.1.7.1. Coordinates with Wing Plans and those other UTC tasked units on cargo and equipment authorizations/requirements in order to develop and maintain a standardized package, which meets the specific mission capability requirements.

5.9.1.7.2. Coordinates with Wing Plans and the Allowance Standard (AS) monitor for that UTC on equipment changes and new equipment requirements.

5.9.1.7.3. Assists with site surveys of deployment locations.

5.9.1.8. Assists units in interpreting guidance for marking/packing/marshaling of tasked equipment according to AFMAN 24-204, AFMAN 10-401, and AFMAN 91-201.

5.10. Not used.

5.11. Debrief. The MXG/CC will establish a debriefing function and the MOC normally has overall management responsibility. At the MXG/CC option, the Aircraft Maintenance Squadron (AMXS) may be given the responsibility for Debrief.

5.11.1. Aircraft debriefing is necessary for all weapons or support systems, but is done differently depending on the complexity of the systems involved. Regardless of the debriefing option elected, procedures are set up to identify "Repeat/Recurring" discrepancies. As a

minimum these procedures will limit the person who signs the “inspected by” block to a 7-skill level or higher.

5.11.2. A repeat discrepancy on an aircraft occurs on the next or attempted sortie after corrective action has been taken and the system or subsystem is used and indicates the same malfunction.

5.11.3. A recurring discrepancy on an aircraft occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or subsystem is used and indicates the same malfunction.

5.11.4. A corrective action occurs when parts are removed, replaced, repaired, or when any form of troubleshooting adjustment or cleaning of contacts is accomplished.

5.11.5. A discrepancy in the aircraft forms requesting an in-flight ops check does not negate the identification of a repeat/recur discrepancy if the malfunction returns.

5.11.6. All repeat/recurs are identified on the automated debriefing sortie recaps and aircraft forms by automated method or red stamp/pen/marker, etc. Debriefers will inform the Production Supervisor and expeditor when a repeat/recur occurs.

5.11.7. Ensure that aircraft utilization data recorded on the AFTO Form 781, **Aircrew/Mission Flight Data Document**, is entered into the MIS. The responsibility for inputting all flight data will be locally determined.

5.11.8. Ensure procedures are developed for loading flying times for aircraft, which are away from home station.

5.11.9. Aircraft scheduled for turn-around sorties need not be debriefed if returned in code 1 or 2 status. However, debriefing is required, regardless of status, after the last flight of the day.

5.11.10. Discrepancies are sent to MOC either by automated or manual means. Assign status codes to aircraft according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, and appropriate Mission Essential Subsystems List (MESL). Debriefing personnel must thoroughly understand and use the MESL found in command supplements to AFI 21-103 or maintained on the ANG web site.

5.11.11. Ensure that there is emphasis of data collection during debriefing because of the financial impact of data lost during poor debriefing procedures.

5.11.12. During debriefing, debriefers are to remove the AF Form 664, **Aircraft Fuels Documentation Log** from the forms binder, and return it to the aircrew. The aircrew is to deliver this form to their document control officer, according to AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*. If debriefers do not perform this function, then the Unit will publish specific procedures outlining the delivery of the AF Form 664 to the document control officer.

5.11.13. When debriefing battle damage, the recovery organization uses the following forms:

5.11.13.1. AFTO Form 97, **Aerospace Vehicle Battle Damage Repair Debrief/Assessment Record**

5.11.13.2. AFTO Form 97A, **Aerospace Vehicle Battle Damage Repair Debrief/Assessment Record (Continuation Sheet)**

5.11.13.3. AFTO Form 781H, **Aerospace Vehicle Flight Status and Maintenance Document**

5.11.13.4. AFTO Form 781A, **Maintenance Discrepancy and Work Document**, according to T.O. 1-1H-39, *Aircraft Battle Damage Repair General Technical Manual*

5.11.14. When automated Maintenance Data Documentation (MDD) Systems, including the debriefing portion are available; data will be input using procedures outlined in the appropriate user manuals or directives. When automated systems are not available, alternate methods will be used, until the data can be input. To the greatest extent possible, all efforts will be made to relay data as soon as possible to the input location.

5.11.15. Debriefing sections will use aircraft fault reporting manuals to help identify fault codes and speed fault isolation. Include fault codes when documenting discrepancies in the aircraft forms. Use automated debrief tools such as the Computerized Fault Reporting System.

5.11.16. When fault reporting manuals are not published for the weapon system, units may develop aircrew debriefing guides. Debriefing guides should contain detailed procedures identifying responsibilities for dropped object reporting, aborts or IFEs, flight control impoundment actions, and engine malfunctions. Debriefing guides are reviewed and approved by QA.

5.11.17. Debriefing record files are developed for each aircraft. Files are arranged by aircraft tail number. Include automated debriefing sortie recaps for the most recent five sorties (minimum) to help properly identify repeat/recur discrepancies (software disk back-up copies containing the same information required by hard copy debriefing information may be filed in lieu of hard copies).

5.11.18. Use the appropriate landing status code (Table 5.1) and the appropriate system capability code (Table 5.2) at the completion of a sortie/mission.

5.11.19. Provide the MOC with aircraft identification numbers and system WUCs for each aircraft debriefed with a landing status Code 3 using the MESL. Production Supervisor makes the final determination on the mission capability status of aircraft; MOC ensures the status is accurate and updates the status information in the MIS.

5.11.20. Debriefers enter one of the deviation cause codes from Table 5.3 to indicate the reason for the deviation and the agency that caused a deviation (AFCSM 21-574, *Automated Debriefing*).

5.11.21. Debriefing sections complete Aircraft Structural Integrity Management Information System (ASIMIS) forms on aircraft with ASIP equipment installed. **NOTE:** Not applicable to F-16 units.

5.11.22. Deployed Debriefing Procedures.

5.11.22.1. When debrief section is not deployed, the senior deployed maintenance officer/NCO ensures debriefing documents are completed by properly trained deployed maintenance personnel.

5.11.22.2. When Maintenance Analysis technicians are not deployed, the senior deployed maintenance officer/NCO designates an individual or activity to perform analysis functions.

5.11.22.3. Use automated debrief tools as the primary debriefing instrument. If MIS is available at the deployed location, MIS will be used. Units include blank printouts of MIS debriefing screens or locally devised products in deployment packages for use if MIS is not available. Use

blank printouts as manual documentation method and send documents to home station for data transcribing by the most expeditious means available. Retain duplicates at the deployed site to help in future debriefings. Turn in, validate and reconcile all documents with the squadron debriefing section upon re-deployment.

5.11.23. Debriefing Enhancements. Units have the option of using the following tools to enhance the debriefing process:

5.11.23.1. Cockpit Mock-up. Display cockpit photographs of each assigned MDS to permit identification of indicators and switches at the debriefing station. Actual size photographs are recommended. Dash-1 T.O. illustrations or computer-aided design (CAD) engineering drawings may be substituted for photographs.

5.11.23.2. Scope Malfunction Photographs. To assist in identifying faulty scope presentations, identify common scope malfunctions using processed radarscope camera film. Index and maintain photographs in the debriefing facility. Maintain duplicates in the appropriate avionics or support shop. When this method is used, the applicable photograph is referenced in the descriptive narrative of the fault for effective cross-referencing. Revise photographs when additional scope malfunctions are identified. Squadrons with weapon systems assigned that are not equipped with scope cameras are encouraged to provide photographs using base resources.

5.11.23.3. Airborne Videotape Recorder (AVTR) Playback Equipment. Use an AVTR playback machine and monitor (compatible with all MDS-installed equipment) in debriefing to assist in screening in-flight data.

5.11.24. Aviation Fuels Management and Accounting. Refueling aircraft at DoD installations should always be a planning priority. However, in the overseas or deployment environment, this is not always possible. Refer to AFI 23-202, for off-station purchases, when purchasing goods and services off-station.

5.11.25. Aircrews are responsible for documenting the AFTO Form 781H, in blocks 13 and 14 for fuel taken on during in-flight refueling. Upon the aircraft's return to home station, the debriefing section reviews the AFTO Form 781H for non-DoD refueling.

5.11.26. During small deployments involving minimal maintenance support, the aircraft commander transmits fuel-servicing information using the most expeditious method. Debriefing sections review the information and forward to RDCO/ICOs. When the aircraft return to home station, debriefing collects all non-DOD fuels documents for turn in to the base fuels officer.

Table 5.1. Landing Status Codes.

CODE	STATUS
Code 0	Ground abort.
Code 1	Aircraft mission capable with no additional discrepancies.
Code 2	Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times.
Code 3	Aircraft or system has major discrepancies in mission essential equipment that may require extensive repair or replacement prior to further mission assignment. The discrepancy may not affect safety-of-flight and the aircraft may be Not Mission Capable (NMC) flyable.
Code 4	Aircraft or system has suspected or known radiological, chemical, or biological contamination.

Code 5 Aircraft or system has suspected or known battle damage.

NOTES: Debriefers enter code "8" in MIS for aircraft debriefed as code "4" or "5".
MESL requirements determine if aircraft mission capability status is NMC or PMC.

Table 5.2. System Capability Codes.

CODE	STATUS
Code 0	System flown with a known discrepancy, no additional Discrepancies noted. System can be used.
Code 1	System used and performed satisfactorily. No maintenance required.
Code 2	System used and performed satisfactorily. A minor malfunction exists, but system is capable of further mission assignment.
Code 3	System performance was unsatisfactory. This system did not cause an abort.
Code 4	System performance was unsatisfactory. This system caused or contributed to an abort.
Code 5	System out of commission prior to takeoff.
Code 6	System installed but not used.
Code 7	System not installed.
Code 8	Aircraft or system has suspected or known Radiological/biological contamination.

Table 5.3. Deviation Cause Codes.

CODE	DEVIATION REASON
ATx	Air Traffic
GAA	Ground Abort, before engine start, maintenance
GAB	Ground Abort, after engine start, before taxi, maintenance
GAC	Ground Abort, after taxi, maintenance
HQT	Higher Headquarters, MAJCOM
HQN	Higher Headquarters, NAF
HQP	Higher Headquarters, other
MTx	Maintenance
OPx	Operations
SUx	Supply
SYx	Sympathy
WXx	Weather
OTx	Other
xxx	ANG/Local Option

NOTE: Use x for any character for ANG/local use.

Chapter 6

MAINTENANCE OPERATIONS CENTER (MOC)

6.1. General. The MOC monitors and coordinates sortie production, maintenance production, and execution of the flying and maintenance schedules, and maintains visibility of fleet health indicators. Command and control are different for internal and external conditions and states of readiness: Internal control is exercised when all resources are in a single squadron; external control is exercised when more than one squadron must share facilities or resources. The squadrons set priorities for their respective production efforts to meet mission requirements. In coordination with maintenance units, the MOC establishes priorities for competing limited resources, based on daily flying schedule and maintenance priorities, such as fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (e.g., egress). The exchange of information between squadrons and the MOC must be in sufficient detail to allow the MOC to comply with reporting requirements and to identify potential problems. During periods of contingency tasking (simulated or actual), the MOC assumes increased responsibility for the coordinating effort. Command and control, as exercised by the battle staff through the MOC, primarily concerns the maintenance squadron(s) actions, which facilitate and expedite production in the operations squadrons. Additional guidance is outlined in AFI 10-207 and ANG supplements if applicable. Specific responsibilities are:

6.1.1. Maintains visual aids (electronic or manual) that show the status and location of each aircraft on station, maintained or supported by the wing. Units should ensure status boards depicting aircraft status comply with program security guidelines.

6.1.2. Publishes local radio call signs for maintenance LMR networks and ensures it is kept current.

6.1.3. Ensures aircraft status is properly reported and maintained in accordance with AFI 21-103, AFCSM 21-564, *Status and Inventory*, and ANG supplements. The aircraft maintenance Pro Super determines aircraft status and capability. The MOC verifies aircraft status using the MIS before reporting it.

6.1.4. Monitors the progress of aircraft functional check flights (FCF) as established by QA and PS&D.

6.1.5. Informs affected activities of changes in priorities, plans, and schedules.

6.1.6. Coordinate on changes to the flying schedule with applicable agencies by use of AF Form 2407, **Weekly/Daily Flying Schedule Coordination**. Automated products containing the same information are acceptable.

6.1.7. Requests support services, such as fire fighting activity standby, aircraft water, snow removal, fueling and defueling service, civil engineer support, or control tower clearances for ground movement of aircraft and equipment.

6.1.7.1. The MOC coordinates on all aircraft engine runs and all aircraft ground movements conducted by maintenance personnel prior to execution.

6.1.8. Develops and implements procedural check sheets.

6.1.8.1. Procedural check sheets are required for use during actions such as mass loads, SGO,

Broken Arrow, Dull Swords, Bent Spear, aircraft crash, flightline fire, severe weather warning or evacuation, runway closure, Quick Reaction Check sheets, and any other unusual circumstances deemed necessary. For SIOP notification, use the plan implementation check sheets. Use unit operational plans as a guide in developing these check sheets. Check sheets contain only those actions required to be taken by a functional area. For example, expeditors maintain check sheets defining their responsibilities during situations such as severe weather, mass generation, etc. The affected functional area develops individual check sheets IAW local defined requirements. The MOC maintains check sheets IAW T.O. 00-5-1.

6.1.9. Monitors the status of Aerospace Ground Equipment (AGE) and vehicles designated as mission essential, if it falls below critical levels.

6.1.10. Coordinates munitions delivery priorities with flying units and munitions maintenance activities/control, when tasked.

6.1.10.1. Informs all required agencies, including the base fire department, of munitions-loaded aircraft to include when each aircraft is loaded or unloaded with munitions. Provide the aircraft type, tail number, location, type of explosives, and arming status. Wings will publish procedures of notification requirements.

6.1.11. Maintains the status, expected time in commission (ETIC), and location of each aircraft on and off station, which is either maintained or supported.

6.1.12. Ensures all deviations to the daily flying schedule are reviewed and accurately reported in accordance with ANG directives. MOC will forward to Maintenance Analysis a copy each of the AF Forms 2407 and daily flying schedule with all deviations annotated. Automated products containing the same information are acceptable.

6.1.13. Monitors the hangar queen program, if applicable.

6.1.14. Coordinates maintenance on the alert force.

6.1.15. Ensures workcenters dispatching in areas where the two-person concept is required are aware of the requirement prior to dispatch, IAW Nuclear Surety Program.

6.1.16. Monitors and reports the status of electronic countermeasures (ECM) and sensor pods IAW AFI 10-201. When mission-capable (MC) pod availability falls below requirements as stated in DOC or OPlan, the monitoring of status is changed to include serial number, status (AWP/AWM), MICAP NSN, off-base requisition numbers, and ETIC. Classification is IAW AFI 31-401.

6.1.17. Informs the flightline expeditor of OAP code C and E conditions, and ensures aircraft are not operated until results of OAP sample(s) are known.

6.1.18. Notifies appropriate agencies (e.g., flightline expeditor, fuel cells, munitions control, etc.) of severe weather warnings.

6.1.19. Ensures wing safety office, QA, and wing FOD monitor are notified of mishaps involving aircraft FOD, aircraft damage, or injuries resulting from aircraft maintenance.

6.1.20. In USAFE, supports the wing's participation in the ACE ACS program. Consult the SHAPE OPS-60, Status Report, ACE Aircraft Cross-Servicing Requirements and Capabilities (NATO CONFIDENTIAL), for ACS program key points of contact. Contact HQ USAFE/LGMM for assistance.

6.1.21. When tasked by the MXG/CC, maintains central key control for hardened aircraft shelters and other facilities.

6.1.22. Prepares aircraft-condition projections for reporting through Status of Resources and Training System (SORTS).

6.1.23. MOC will coordinate, track, and assign a control number for cannibalization actions.

6.2. MOC Personnel. Personnel who work in the MOC must know the maintenance information system and be qualified by experience and/or formal training on at least one of the weapons systems being maintained.

6.2.1. The MOC senior coordinator establishes a well-defined proficiency training program for weapons system coordinators. Because there is no weapons system coordinator AFSC, the proficiency training program familiarizes MOC personnel with every aspect of MOC operation.

6.2.2. Selected personnel assigned to the MOC are capable of reporting aircraft status from the Minimum Essential Subsystems Lists (MESL) and in operating MIS remote devices before assuming unsupervised duties.

6.2.3. The MOC senior coordinator or representative will attend daily group production meeting.

6.3. MOC Facilities. The MOC should be located near the flightline. Facilities and visual aids cannot be fully standardized due to variations in buildings, geography, mission and organizational site. When deployed, units may establish an alternate maintenance operations facility. The facilities and visual aids must meet the minimum standards set forth in this publication. When improvements to existing facilities are possible or when new facilities are being planned, the following standards apply:

6.3.1. Completely enclose room, air condition and heat IAW AFI 32-8004. An observation room is permitted. The floor of the observation room is high enough to permit seeing the status board without interference. The doors to the MOC and the observation room are either mechanically or electrically locked. Control access to both for security.

6.3.2. Isolate MOC electrical power circuits and have procedures in place for providing a standby power source and emergency lighting.

6.4. Visual Aids. Use visual aids to provide ready access to critical data. Computer terminals may be used in place of visual aids. If this option is used, develop procedures for retrieval of printed products on a regular basis providing contingency working documents in case of system failure. If a video projection system is used to display MIS data to complement MIS terminals, establish an authorization IAW AS 007. Visual aids show the following:

6.4.1. Aircraft status displays list aircraft by serial number and show location, priority, status, designed operational capability (DOC) limitations/remarks, ETIC, configuration, OAP status codes, munitions load and fuel load columns. Units having only one standard configuration or fuel load may omit these columns. Units using automated systems need to display the above information, but may use "remark" or "narrative" portions of the screen for items not listed by specific title. Show DOC limitations against Full System List (FSL) and the Basic Systems List (BSL) as itemized on the MESL in the applicable MAJCOM supplement to AFI 21-103 as listed in ANG Index 2 section F. Discrepancy narratives in the "DOC limitations/remarks" column should be clear, concise, accurate, and include all pertinent data (i.e., document numbers, etc.)

6.4.2. Format flying schedule displays to show the individual aircraft scheduled for flight each day. As a minimum, column headings show serial number, scheduled takeoff, actual takeoff, scheduled landing, actual landing, sortie configuration, call sign and remarks.

6.4.3. When required by unit mission, construct generation displays showing operational readiness inspection (ORI/IRRI/NATO TAC EVAL), SIOP, general war plan, strike, mass load, and other special mission requirements. The display shows maintenance actions required to generate aircraft in the time sequence to meet mission requirements. The format of the displays should be compatible with operational plans and command post displays.

6.4.4. Each unit assigned a mobility commitment constructs portable mobility displays to meet deployed mission needs.

6.5. Maintenance Communications. Reliable, redundant and effective communications systems are essential for efficient operation. These systems should provide accurate, timely, secure, programmable frequency and jam resistant communications needed to accomplish the maintenance mission in a fully deployed isolated mode. Develop and exercise communications-out procedures. People receive initial radio operating training before assuming duties involving radio operation IAW AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*; AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum Management*; and AFI 33-202. For effective flightline operation, more non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when host tenant agreements so specify.

6.5.1. Allowance for specific radios are shown in AS 660. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110.

6.5.2. A VHF/UHF radio is authorized to provide communications between aircraft and maintenance. Aircrews will relay advance status information, IAW locally developed procedures.

6.5.2.1. STU phones are authorized

6.5.3. The following standard maintenance notification codes reflect the landing status of the aircraft being reported:

6.5.3.1. Code 1 - Aircraft is flyable with no additional discrepancies.

6.5.3.2. Code 2 - Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times.

6.5.3.3. Code 3 - Aircraft or system has major discrepancies in mission essential equipment that require repair or replacement before further mission assignment.

6.5.3.4. Code 4 - Aircraft or system has suspected or known radiological, chemical, or biological contamination.

6.5.3.5. Code 5 - Aircraft or system has suspected or known battle damage.

NOTE: Debriefers enter code "8" in the MIS for aircraft debriefed as code "4" or "5".

6.5.4. Each MOC has a hotline on the secondary crash phone net. When required, direct communications lines are provided to QA, munitions control, explosive ordnance disposal

(EOD), airfield operations, base fire department, NDI, and the central security control. When mission requirements justify, a direct line to the control tower should be installed.

6.6. Specialist Use and Control. When a specialty is not available within a squadron's resources the MOC coordinates with the specialist shop to provide support. In this case, specialists are dispatched by direct communication between the MOC and the workcenter.

6.6.1. When a specialist is not available, the expeditor asks the MOC for specialist support. Specialists report to, and are controlled by, the expeditor. The expeditor releases the specialists when no longer needed for the dispatched task and tells the MOC.

6.6.2. When an unscheduled maintenance requirement exists in the maintenance squadron(s), and the requirement cannot be satisfied within their resources, the workcenter asks the MOC for support. Dispatched personnel report to, and are controlled by, the workcenter supervisor. The workcenter supervisor releases the dispatched personnel when no longer needed and tells the MOC. Specialists will report job completions, start and stop times, ETIC slippages, and significant problems to maintenance supervision and/or the MOC.

6.6.3. MOC monitors the maintenance squadrons' specialists working on aircraft scheduled and unscheduled maintenance requirements. To obtain specialist support for phase, periodic or isochronal inspections, the MOC sources them from the appropriate organizations as outlined on the appropriate AF Form 2406, **Maintenance Preplan**, or MIS product. When specialists do not report to the requesting workcenter within 15 minutes of their scheduled start time, MOC is informed of the no-show and takes follow-up action.

6.7. Selected Generation Aircraft. In units where aircraft are required to meet SIOP or contingency commitments, the squadrons select the tail numbers of aircraft needed to meet requirements. Maintain visual aids that show the order aircraft should be generated. The MOC constantly monitors aircraft status and revises the pre-selected sequence as changed by the squadron.

6.8. Transient Aircraft. The MOC keeps the status and location of all transient aircraft. Post the priority of each transient aircraft on the status board, based on the maintenance priorities listed in Table 1-1. MOC coordinates with the appropriate agency for aircraft maintenance support.

6.8.1. The MOC will contact Weapons Standardization (WS) for arming or de-arming of transient aircraft. Refer to Chapter 16 for additional guidance.

Chapter 7

DOCUMENTING MAINTENANCE

7.1. Aircraft/Equipment Forms Documentation. Aircraft forms documentation will be accomplished IAW T.O.s 00-20-1, and 00-20-2.

7.1.1. When MIS systems are available, automated forms will be used. As a minimum, AFTO Form 781A, AFTO Form 781J, **Aerospace Vehicle - Engine Flight Document**, AFTO Form 781K, **Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document** and AFTO Form 95, **Significant Historical Data**, generated by the applicable MIS system will constitute fully automated aircraft/equipment forms. Manual forms produced by a computer program such as PerForm or JetForm do not meet the intent of automated forms.

7.1.2. The element/workcenter supervisor ensures all discrepancies, completed maintenance actions, inspections, serially controlled components, TCTOs, deferred discrepancies, etc., are documented and input into the MIS system as soon as possible, but no later than the end of shift. (**NOTE:** When MIS systems are down, develop procedures to manually document maintenance actions and to ensure the appropriate MIS systems documentation is completed as soon as the system is operational.)

7.1.3. Document support general work with 02 (wash only), 03 (scheduled inspections or maintenance), 04 (special inspections), and 09 (shop support general) prefixed work unit codes. All other support general data are not required to be input into the MIS system (T.O. 00-20-2).

7.1.4. All red X discrepancies will be cleared from both the aircraft forms and the MIS system prior to flight. Refer to table 18.1, Mandatory Special Certification Roster (SCR) and Prerequisites, for Red X sign-off eligibility requirements. Units will develop a local OI to ensure Red X discrepancies discovered during time-sensitive maintenance accomplished during red ball, or EOR operations are input and cleared from the forms prior to flight and every effort will be made to input and clear the discrepancy in the MIS prior to flight. **NOTE:** Develop procedures to ensure that when the MIS is down, the appropriate documentation is completed as soon as the system is operational.

7.1.5. Preprinted manual aircraft forms are not authorized for use in units with an available MIS. (**Exception:** QA may authorize use of preprinted manual aircraft forms during those times when the MIS is unavailable). Units may create job flow packages in the MIS to automate required documentation of repetitive complex tasks such as engine change, phase inspection, flight control maintenance, etc. Each time the governing publication changes, or at least annually, QA will alert the OPR to review the appropriate job flow package.

7.1.6. As a minimum, any Red X symbol conditions generated during the performance of an inspection (Phase, ISO, HSC, or HPO) will be entered into the MIS system and on AFTO Form 781A. Minor discrepancies may be tracked on AFTO Form 349s, **Maintenance Data Collection Record** or locally developed listings. Any minor discrepancies still open at the time the "Fix" phase is complete must be entered into the AFTO Form 781A or AFTO Form 781K and the MIS system.

7.1.7. Aircraft modified for service tests will have a 3- by 5-inch red-bordered placard affixed to the front side of the AFTO Form 781F, **Aerospace Vehicle Flight Report and Maintenance**

Document. The placard will state the type of modification and installed equipment.

7.1.8. Documentation prescribed in this instruction is maintained IAW AFMAN 37-123, *Management of Records*, and disposed of IAW AFMAN 37-139, *Records Disposition Schedule*.

7.1.9. Units using fully automated forms will maintain the last 7 sets of transcribed aircraft forms in the aircraft jacket file in PS&D. When the 8th report is received, destroy the earliest record. (AFMAN 37-139)

7.1.10. Units without a MIS system and authorized to use manual aircraft forms will maintain the last 3 months and current month worth of transcribed aircraft forms in the aircraft jacket file. (AFMAN 37-139) **NOTE:** Locally developed databases will not be used in lieu of CAMS or G081.

7.2. Aircraft Document Reviews (ADR). Aircraft AFTO Form 781-series for possessed aircraft are reviewed by flightline maintenance functions (CC or alternate), PS&D, engine management (EM), NDI OAP Lab, and LRS to ensure the accuracy and validity of entries.

7.2.1. As a minimum, this review will validate and correct any errors on airframe and engine operating times and cycles, TCTO documentation, TCI component operating times, time remaining to the next inspection, backordered supply document numbers, and a validation of open and deferred discrepancies.

7.2.2. An ADR is accomplished at least every 60 days for units using fully automated AFTO 781-series forms. Units without access to a MIS system and authorized to use manual AFTO Form 781-series must accomplish an ADR at least every 30 days. Also accomplish an ADR when an aircraft is transferred (including Queen Bee), deployed for more than 30 days, before and after scheduled inspections (Phase or ISO), before and after storage, and after fatigue tests. **NOTE:** For cannibalization aircraft, conduct ADRs at least every 30 days. The MXG/CC may shorten the ADR interval as needed.

7.2.3. ADR Procedures:

7.2.3.1. PS&D creates a job standard (JST) for ADRs and loads this inspection against all assigned aircraft. JST intervals are based on the type of 781-series forms used (automated or manual).

7.2.3.2. PS&D schedules the ADR into maintenance plans. An ADR is a scheduled maintenance action and counts in scheduling effectiveness computations.

7.2.3.3. PS&D and EM validate applicable inspection, TCI, and TCTO data for correct due dates or expiration dates, airframe and engine operating times (or flight times if applicable), and appropriate symbol entry required by T.O. 00-20-1.

7.2.3.4. Supply runs a tail number inquiry to validate backorders and corrects any discrepancies discovered.

7.2.3.5. All documentation discrepancies discovered during ADR will be corrected by maintenance personnel prior to updating the ADR job control number (JCN).

7.3. Document Management. Documentation sections keep historical documents and maintenance data essential to the planning and scheduling of maintenance. The documentation activity is an essential link in the processing of related forms for TCTOs and time change items.

7.3.1. Keep individual documents for end items, subsystems, and components in accordance with the T.O. 00-20-series, this instruction, automated management systems' documentation, AFI 21-103, AFI 33-322, and the applicable -6 T.O.s.

7.3.2. When MIS systems are available, MIS products will be used in place of AFTO Forms 95, to document significant historical events on aircraft, engines, and equipment.

7.3.3. Filing and Disposition. Establish files and properly dispose of documents. A file (or files) for maintenance documents is set up in accordance with AFI 33-322 and T.O. 00-20-1. Complete disposition of documents according to AFI 37-138, as specified by AFMAN 37-139. Equipment records may be decentralized down to the section owning the equipment.

7.4. Repeat/Recur Discrepancies.

7.4.1. Clear Repeat/Recur discrepancies. These types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher personnel can clear the appropriate symbol IAW T.O. 00-20-1.

7.5. Cannot Duplicate (CND) Discrepancies.

7.5.1. Personnel will make every effort to duplicate the circumstances that created the reported discrepancy. The discrepancy may be cleared only after thorough troubleshooting has been accomplished. CND discrepancies will be cleared in the following manner:

7.5.1.1. When discrepancy cannot be duplicated, the technician will document troubleshooting actions and add "Cannot Duplicate Malfunction" (CND) in corrective action block. These types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher will clear the symbol IAW T.O. 00-20-1.

7.5.1.2. IAW T.O. 00-20-1, when any corrective action involves more than one workcenter, personnel having the primary responsibility for repair will not initial over the symbol until all participating workcenter personnel have completed and documented their work. Each workcenter will make a separate form entry referencing the original discrepancy. The additional form entries will be referenced in the corrective action block of the original discrepancy.

7.6. Maintenance Data Systems Analysis.

7.6.1. Data Integrity Teams. Units will form Data Integrity Teams (DIT) led by MDSA, with a representative from each squadron that repairs aircraft, and participation from PS&D, the MOC, the CSSM, EM, Debrief, and QA on an as needed basis, as determined by the MDSA. The DIT will be the final authority in resolving any MIS entries, and therefore requires the complete backing of senior unit leadership. DIT is not required for contract maintenance organizations unless specified in the SOW.

7.7. In-Process Inspections (IPI). An IPI is an additional inspection or verification step at a critical point in the installation, assembly, or reassembly of a system, subsystem or component. These inspections are either T.O., ANG, or locally directed and are accomplished by qualified personnel as identified in the SCR. The weapon system lead command as defined in AFD 10-9, *Lead Operating Command Weapon Systems Management*, will determine minimum IPI requirements and incorporate these requirements into applicable technical orders. Maintenance supervision compiles a list of squadron tasks requiring IPIs. The list will include work unit code, nomenclature, specific T.O., paragraph, and step number within the technical order task where the IPI will be called for. When developing the IPI list, consult with QA on trends or problem

areas that continually warrant extra supervisory attention. Squadrons submit their on and off equipment lists to Quality Assurance for consolidation, coordination with operations group commander (where applicable), MXG/CC approval, and publication as a IPI listing. IPIs will be reviewed annually for applicability. **NOTE:** Some IPIs are already specified in applicable tech data. There is no requirement to include T.O. directed IPI tasks in the local listing.

7.7.1. Document the IPI due in the discrepancy block of the original discrepancy or as a separate entry in the AFTO Form 781A, AFTO Form 244, **Industrial/Support Equipment Record** or appropriate work document and in the MIS. If the IPI is a separate entry in the AFTO form 781A or AFTO Form 244, place the IPI on a Red X. When an IPI is a separate entry, document IPI compliance in the "Corrective Action" block of the AFTO form 781A and sign the "Inspected By" block. Ensure the original discrepancy references the page and item numbers of the IPI entries. The person performing the task enters the required IPI step and notifies a qualified IPI certifier at the appropriate step. The certifier complies with the IPI and enters their signature and employee number next to the IPI statement in the corrective action block. The qualified technician who ultimately clears the discrepancy will ensure the IPI was completed and properly documented. For maintenance actions where a different workcenter is required to perform an IPI, the prime workcenter creates a workcenter event (WCE) or job for the IPI. The individuals signing the Red X and IPI do not have to be the same.

7.7.2. IPI documentation for off-equipment maintenance will be accomplished as follows:

7.7.2.1. IPIs will be documented in the same manner as on-equipment IPIs, utilizing the AFTO Form 350.

7.7.2.2. Document engine off-equipment IPIs in the engine work folder. IPI documentation in an automated system is not required for off-equipment engine work.

7.7.2.3. Tactical missile IPIs are documented in the Tactical Munitions Reporting System (TMRS). Ensure the step that requires the IPI and the employee number are identified on the documentation.

Chapter 8

MAINTENANCE SUPPLY SUPPORT

8.1. General. AFMAN 23-110, *USAF Supply Manual* provides supply policies and procedures for supply support. Within the ANG, units are supported through Combat Supply Support for Maintenance (CSSM) under the Chief of Supply. Detailed procedures for management of CSSM is outlined in AFMAN 23-110.

8.2. Intermediate Repair Enhancement Program (IREP). IREP provides wing senior leadership a forum to evaluate current aircraft weapons systems resource and support status, highlight specific problem areas, focus on local repair initiatives to include the Air Force Repair Enhancement Program AFREP processes, and discuss ways to improve the overall repair cycle process. (**NOTE:** IAW AFI 21-123 AFREP is optional to the ANG.) The MXG will be the OPR for the IREP program meeting on a recurring basis (at least quarterly). This forum should include people who can resolve problems within the base repair process. Personnel from maintenance and off-equipment repair activities, as well as financial managers, resource advisors are critical to program success.

8.2.1. IREP Meeting. The meeting is chaired by the MXG/CC. Participants may include the following; OG, LRS, flight service center, representatives from MXS supervision from each flying squadron, each squadron sortie support or maintenance flight, O&M resource advisors, maintenance analysis, AFREP (if applicable), QA, Propulsion element, Avionics element and others as determined by the chairperson. The key to a successful IREP is active involvement of all individuals and organizations associated with the repair cycle process. At the IREP meeting the appropriate asset manager should be the focal point to lead the discussion of the key data about a specific part. Conduct IREP meetings on a recurring basis (at least quarterly) to ensure the repair cycle process is on track, to seek methods of improvements, and to apply necessary resources to get the job done. The first order of business should be a review of action items from the previous IREP meeting.

8.2.1.1. Subject Matter Review. One of the objectives of the IREP meeting is to increase overall base self-sufficiency for repair and reduce the overall cost of operations. Topics discussed vary based on local requirements, but should include key elements of asset management and costs associated with each of the maintenance stock fund divisions. The number of items reviewed in each category is determined locally. Units determine the specific format and visual aids used for presentation.

8.2.1.2. Asset Profile/Top Projected MICAP Situations. An asset profile is an in-depth review of an asset identified as critical to mission accomplishment or that causes frequent MICAP situations. Data in an asset profile may include number authorized and on-hand, number repaired and not repaired, number MICAP, average repair cycle days, average AWP days, monthly demand, item cost, and financial value of assets in the repair cycle. The overall health of the assets should include reasons for MICAP situations and solutions to resolve them.

8.2.1.3. Test Station Equipment Profile. Test station in-commission time is critical to efficient repair cycle output. TMDE and other shop deficiencies may have a negative effect on the base repair cycle process. The wing should focus on actions, which maximize test station capability.

8.2.1.4. Wing Self-Sufficiency Initiatives. Initiatives include discussion of new wing, group and

squadron AFREP initiatives and other local self-sufficiency repairs. Discussions must include how initiative is cross-fed to appropriate depot, ANG headquarters, and all other like-MDS bases.

8.2.1.5. High Cost Maintenance. Unit funded Time Compliance Technical Orders (TCTOs)/modifications, high cost workcenters, Special Purpose Recoverables Authorized Maintenance (SPRAM) back orders, financial value of parts in the repair cycle, etc.

8.2.1.6. Top CANN Items. Items with significant CANN histories. Review information which includes the number of times items were cannibalized the last 30 days, average cannibalization occurrences over the last 6 months, projected get well date, and the time required to CANN the item.

8.2.1.7. Unit Aircraft Engine Status Review. A status review summary should include number in work, projected production date, and reasons for work stoppage.

8.2.1.8. Repair Cycle Bottlenecks. Review any area, which impedes the repair cycle process such as frozen supply records, supply, rejects, test station backlogs, personnel deficiencies, manpower shortages etc.

8.2.1.9. AWP Program. Analyze due-outs causes and back order priorities to determine if supply action is required to correct any deficiencies/problems. See also paragraph 18.6.1.

8.2.1.10. Repair Cycle Throughput. Throughput is the average time it takes to move individual items through the repair cycle. Review/compare the 12-month average versus the current month repair cycle time (RCT) to determine if progress is being made. RCT is defined as the complete cycle from issue to repair/condemn, and turn-in or shipping of a reparable asset.

8.2.1.11. Part Store Issue Effectiveness. Percentage of aircraft parts issued from the flightline part store vs. the main warehouse. Disregard this element when LRS does not segregate aircraft components into a separate warehouse.

8.2.1.12. Discuss product improvement initiatives (AFTO Form 22, **Technical Order Improvement and Reply**, AFTO Form 27, **Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval**, AFTO Form 135, **Source, Maintenance and Recoverability Code Change Request**, Deficiency Reports (DRs), maintenance related Innovation Development through Employee Awareness (IDEA), etc.).

8.3. Maintenance Repair/Supply Delivery Priorities. Use the following to establish maintenance repair priorities. Raising or lowering priorities will not necessarily require a corresponding change in the supply delivery priority. The maintenance repair priority and the supply delivery priority are normally identical. Use a less responsive supply delivery priority when the need time or date for a part does not justify the delivery priority specified. Refer to AFI 24-301.

8.3.1. Priority 1. Supply delivery: Within 30 minutes. Use for primary mission aircraft within 12 hours of a scheduled launch on the following missions:

8.3.1.1. Presidential directed missions supporting U.S. forces in combat and national emergency plans and special weapons movement missions.

8.3.1.2. Aircraft alert status.

8.3.1.3. Related AGE, munitions, and munitions equipment assigned to these missions.

8.3.2. Priority 2. Supply delivery: Within 30 minutes. Use for:

8.3.2.1. Primary mission aircraft and related AGE, munitions, and munitions equipment for first 8 hours after landing or start of recovery or within 6 hours of a scheduled launch or alert.

8.3.2.2. Simulated generation during operational readiness inspections.

8.3.2.3. Primary special weapons movement mission aircraft 48 hours prior to a scheduled launch.

8.3.2.4. Aeromedical evacuation, rescue, and weather mission aircraft and related AGE, munitions and munitions equipment.

8.3.2.5. All transient Federal Aviation Administration aircraft.

8.3.2.6. Aircraft and equipment or related AGE requiring repair, which is preventing or delaying student or maintenance training.

8.3.3. Priority 3. Used for:

8.3.3.1. Primary mission air vehicles, engines and related AGE, munitions and munitions equipment, undergoing scheduled or unscheduled maintenance.

8.3.3.2. Transient air vehicles not otherwise listed.

8.3.3.3. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews.

8.3.3.4. Time change requirements for nuclear weapons.

8.3.3.5. Scheduled and unscheduled maintenance of munitions which if not performed will prevent or delay mission accomplishment.

8.3.3.6. Test, Measurement and Diagnostic Equipment (TMDE) requiring emergency repair or calibration, the lack of which will prevent or delay mission accomplishment.

8.3.3.7. Spares not available in supply.

8.3.3.8. Critical end items and reparable spares or supply designated "priority repair" spares.

8.3.3.9. Routine maintenance of aircrew or missile training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training.

8.3.3.10. Avionics shop electronic support equipment and automated test stations.

8.3.4. Priority 4. Used for:

8.3.4.1. Routine or extensive repair of primary mission air vehicles, related AGE, and repair cycle assets.

8.3.4.2. Administrative aircraft undergoing scheduled or unscheduled maintenance.

8.3.4.3. Routine maintenance of AGE not otherwise listed above.

8.3.4.4. WRM items due maintenance or inspection.

8.3.4.5. Inspection, maintenance, and TCTO compliance of MSK or MRSP material.

8.3.4.6. Scheduled calibration and unscheduled repairs on TMDE not listed above.

8.3.4.7. Extensive repair of aircrew or missile training simulator, or other training devices or

related AGE.

8.3.5. Priority 5. Used for:

8.3.5.1. Bench stock requirements.

8.3.5.2. Fabrication and repair of aeronautical items not carrying a higher priority.

8.3.5.3. Non-tactical or non-primary mission aircraft undergoing extensive repair.

8.3.5.4. Time change requirements on non-nuclear items.

8.3.6. Priority 6. Used for fabrication and repair of non-aeronautical items, equipment, and other aeronautical requirements.

8.3.7. Priority 7. Used for spares excess to base requirements.

8.4. Decentralized Supply Support. Within the ANG, maintenance supply support is obtained from the Combat Supply for Maintenance (CSSM) section under the Chief of Supply. Customer's procedures for the management of CSSM are outlined in AFMAN 23-110. The procedures outlined below provide general responsibilities to maintenance personnel regarding their role in obtaining needed supplies and equipment to maintain combat ready aircraft. CSSM personnel will assist maintenance in processing requisitions, researching sources of supply, completing DD Form 1348-6, **DoD Single Line Item Requisition System Document**, entering manual requisitions (part number only), updating exception code lists, and other peculiar maintenance supply problems.

8.5. Ordering Parts. Order aircraft parts from LRS through MIS/SBSS interface. Monitor supply status on all backordered parts. Request supply assistance if status is unacceptable. Technicians ordering parts:

8.5.1. Provide required data to facilitate the issue request. See AFMAN 23-110.

8.5.2. Complete AF Form 2413, or locally developed computer log, and include supply document number and time ordered or use printouts of requests made via supply interface in lieu of AF Form 2413 or computer log.

8.5.3. See T.O. 00-20-1, and AFMAN 23-110 when ordering parts for transient aircraft. Use demand code N (non-recurring) for transient aircraft requests. Use demand code R (recurring) if the item is for a base assigned aircraft or for regularly scheduled transient flights.

8.5.4. Supply Discipline. Supply discipline is the responsibility of all military and civilian employees regardless of grade or position. Supervisors, at all levels, ensure the practice of good supply discipline. Train all maintenance personnel to perform supply duties related to their job. They must understand:

8.5.4.1. A repairable item is as important as a serviceable item, since the repairable may be the only part available. Therefore, promptly process repairable items.

8.5.4.2. How to assign a valid supply delivery priority to each demand. AFMAN 23-110 identifies these priorities.

8.5.4.3. Notifies the Customer Service Representative (CSR) in CSSM to cancel both erroneous requests and those requests that are no longer required. Also notifies the Customer Service Representative to downgrade UJC as necessary (NMC to delay discrepancy, etc) to save transportation costs.

8.5.4.4. Force activity designators (FAD) assigned to each Air Force unit based on the Air Force program document. Use this code with the urgency of need designator (UND) to set the requisition priority. When supporting a unit with a higher FAD, use the FAD of the supported unit.

8.5.4.5. The proper use of the Urgency Justification Code (UJC) on parts requests, to designate the impact and type of need. The Urgency of Need Designator (UND) is the first position of the UJC and indicates the impact of the request. The use of the following UNDs: 1,J and A are restricted and must be verified by the Pro Super, expeditor or as designated by the MXG/CC.

8.5.4.6. How to verify and monitor backordered requests to prevent unwarranted mission limiting conditions, cannibalizations, priority abuses and wasted money. AFMAN 23-110 identifies verification requirements.

8.5.4.7. The requirement to recycle reusable containers and metals.

8.5.4.8. How to turn in excess materiel.

8.5.4.9. The importance of recording usage of an item in the supply system by processing TRNs is imperative because if the removal and replacement is not processed in supply it may never be stocked or may be under stocked.

8.5.4.10. Due In From Maintenance (DIFM) inputs are critical to recording and getting credit for proper repair cycle times. DIFM status codes are currently broken down into three categories, delayed maintenance time, repair time, and AWP time. Repair time is the only time recorded and used to determine the number of assets LRS can stock. Not using the proper codes when they change reduces the number of assets on base. Additionally, since credit is not given for delayed maintenance time or AWP time these should be reduced to as near zero as possible.

8.5.4.11. The System Program Director (SPD) must approve the local purchase of all aircraft parts (Refer to AFI 64-117).

8.6. Bench, Shop, Operating Stocks, Work Order Residue, Special Levels, and Shelf-Life Items.

8.6.1. Bench Stock. Workcenter supervisors determine the contents of their bench stock. Examples of bench stock items include: nuts, bolts, cotter keys, washers, resistors, capacitors, light bulbs, sealants and batteries. Bench stock shadow boards are optional. Every effort should be made to use unserviceable assets for shadow boards. Establish levels to provide 60 days usage. Retain excess material but not over 200% of the authorized quantity.

8.6.1.1. Mark bins containing 50 percent or less of the authorized quantity to facilitate monthly inventories. Do not include items coded TCTO, unacceptable for Air Force use, critical, classified or sensitive in bench stocks. Refer to AFMAN 23-110.

8.6.1.2. Maintain environmentally sensitive items in their original container. If removed from original container, place items in a sealed package and clearly mark them to prevent misidentification and misuse avoid mistakes. (e.g. seals, dessicant, filters, circuit cards, sealants)

8.6.1.3. Remove unidentifiable items, or items whose serviceability is unknown, from bench stock bins and process them as shop scrap through the Defense Reutilization and Marketing Office (DRMO).

8.6.1.4. Control and secure any precious metals displayed. Dispose of property containing

precious metals in compliance with AFMAN 23-110.

8.6.1.5. Set up fixed or mobile bench stocks to provide quick and easy access to bits and pieces needed to support maintenance efforts. Ensure mobile bench stocks do not present a FOD hazard.

8.6.1.6. Identify and control the issue and turn-in of hazardous materiel/items on bench stock listings. See AFMAN 23-110 for additional guidance on establishing, maintaining, and reviewing bench stocks.

8.6.2. Shop Stock. Maintain shop stock for day-to-day operations. Monitor shop stock to prevent materials from becoming excessive or outdated. Includes gas cylinders, random length bar stock, sheet metal, plastic, fabric, electrical wire, and similar items not normally included in bench stocks. Shop stock should not normally exceed 90 days usage, or the unit of issue or unit pack, whichever is greater. Store shop stock near/adjacent to bench stock items, if practical, but do not mix them together. Clearly identify materials as "Shop Stock" and label them with noun, national stock number or part number, unit of issue, and shelf life, if applicable.

8.6.3. Operating Stock. Includes connector dust covers, hydraulic line caps/plugs, and similar items that are normally recovered after use and re-used. Store operating stock near/adjacent to bench stock items, if practical, but do not mix them together. Monitor operating stock to prevent it from becoming excessive or outdated. Retain partially used bench stock items in bench stock and not in operating stock. Identify, tag, and turn in items with no forecasted use IAW AFMAN 23-110. Clearly identify items as "Operating Stock" and label them with noun, national stock number or part number (if applicable), unit of issue, and shelf life, if applicable.

8.6.4. Work Order Residue. Includes expendable bit/piece items left over from maintenance work orders or bench stock deletions. Store work order residue near/adjacent to bench stock items, if practical, but do not mix them together. Ensure excesses are consolidated for turn-in to LRS, when possible. Clearly identify items as "Work Order Residue" and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable. Control all work order residues used on or around aircraft, uninstalled engines, and AGE.

8.6.5. Adjusted Stock Levels. Adjust LRS stock levels to prevent an out of stock condition. Adjusted levels are used when the demand level or consumption is inadequate to support the requirement. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level. It may indicate a need to review demand data for accuracy. Use AF Form 1996, **Adjusted Stock Level**, to establish supply levels for support of special projects, special operating requirements, or if existing demand data is insufficient to support mission requirements. Workcenters, with assistance from LRS personnel, prepare the AF Form 1996 and route it through maintenance supervision for review prior to sending to LRS customer service/stock control. See AFMAN 23-110 for criteria and procedures for submitting these requests. Prior to submission to LRS, ensure the AF Form 1996 contains adequate justification and is approved by the group commander. Examples of adequate justification include: seasonal material requirements, long lead-time items, unserviceable components forcing a "no fly" or NMC condition for extended periods of time and fleet-wide versus single aircraft impacts. Workcenters maintain a master file of adjusted stock levels and follow-up on requests. LRS personnel and the appropriate workcenter accomplish a validation of adjusted stock levels according to AFMAN 23-110.

8.6.6. Shelf life Items. Workcenters control shelf life items in bench stock and operating/shop stock IAW AFMAN 23-110. LRS identifies shelf life items by use of labels. This label contains the item's shelf life code. Mark Operating/Shop stock labels with the shelf-life codes and source (e.g., T.O. number, etc.). Contact the LRS Chief Inspector to determine shelf life if conflicts exist between the various sources. Check expiration dates on issued items and do not accept outdated items from LRS. Do not open shelf life containers until needed and use the oldest items first. Recycle, reclaim, or turn-in for disposal shelf life items which are loose in the bin and expiration dates cannot be determined IAW Type I shelf life criteria. Inspect Type II shelf life items IAW applicable tech data.

8.7. Repair Cycle Assets. All units establish a repair cycle support element or flight service center to monitor and control progress and status of repair cycle assets. Process repair cycle assets according to T.O. 00-20-3. Units establish local procedures for the control of repair cycle assets throughout the maintenance cycle. Include methods of accounting for all components and accessories, procedures for control of assets in AWP or AWM status, and procedures and responsibilities for cross cannibalization, removal of bits and pieces, and scheduling and control of repair cycle assets. Promptly process, repair, and return repairable components to the repair cycle support element. Repair assets to the fullest extent authorized within unit capabilities.

8.7.1. EOQ/XB3 Turn-In. Place EOQ/XB3 pick-up point containers in or near each maintenance workcenter to encourage turn-in of unneeded items. Make the containers easily accessible and visible. Workcenter supervisors periodically inspect containers for unauthorized items. AFMAN 23-110 contains detailed procedures.

8.7.2. The requisitioning and control of TCTO kits is a supply process managed within the Repair Cycle Support Element.

8.8. Tail Number Bins (TNB). Place all due-out release (DOR) items in the TNB and inform the MOC and expeditor (for MICAPs) or the operations squadron PS&D (for backordered items) that the part is in. Do not release parts from the TNB without proper documentation. Return items removed from the TNB that are not installed that duty day. Inform the Production Supervisor or expeditor of TNB assets, which may prevent or satisfy a mission-limiting condition. TNB items used to satisfy MICAP conditions are not cannibalizations. Reorder these items and notify the expeditor of the new document number. Update the aircraft forms and automated maintenance system. If supply, CSSM, or COSO creates a due-out prior to transfer of these items, notify LRS to change the "mark-for" field on the due-out detail. Seal and store partially completed TCTO kits and parts in the TNB and mark the container or package with the tail number, serial number, or equipment identification number and TCTO number. Maintain security and control of TNB assets. Track property placed in the TNB by tail number, serial number, or equipment identification number. For each entry indicate:

8.8.1. Date received.

8.8.2. Noun.

8.8.3. Document number.

8.8.4. Status (facilitate other maintenance (FOM), ISU/DOR, TCTO, etc.).

8.8.5. Removal information (date, time, signature, and employee number of the person who picked up the property).

8.8.6. Remarks.

8.9. Cannibalization. Cannibalization (CANN) actions may be necessary when a not-mission capable (NMC) condition will prevent the accomplishment of a mission and the required assets are not immediately available from supply. Prior to cannibalization action, verify that the required component cannot be sourced from on-base assets within the allotted time. In addition, the cannibalization decision authority considers man-hour availability and the risks of damaging serviceable equipment. Document cannibalizations according to automated maintenance systems' documentation and process according to T.O. 00-20-2. Additional local guidance for cannibalization actions should identify who may authorize CANN action, restrictions, specific procedures, individual responsibilities, and documentation requirements.

8.9.1. CANN actions involving parts from ABDR aircraft, Air Force Museum aircraft, Maintenance Training Devices (MTDs), or Defense Reutilization and Marketing Office (DRMO) will not be accomplished without authorization from the Item Manager. If the part is approved for CANN, it will not be put into service until all necessary inspections (NDI, pressure checks, operational checks, etc) have been performed using specific guidance from the Item Manager to ensure proper serviceability. Parts will not be removed from static display/Air Force Museum aircraft except in accordance with AFI 84-103, *Museum System*.

8.9.2. Removal of Bit and Piece Repair Parts from Condemned Assets. Remove selected bit and piece repair parts from condemned end items. Do not remove bit and piece repair parts from XD assets returning to the depot without item manager approval. The end item manager provides condemnation authority for XD assets. Once condemnation authority for an XD asset is received from the item manager, remove all serviceable and repairable XD SRUs. Bench check all XD SRUs and process all serviceables for turn-in to LRS as "found on base." Determine if the unserviceable XD SRUs repair cost exceeds 75 percent. If repair exceeds 75 percent of cost, reinstall the SRU into the condemned LRU and turn-in the LRU to LRS through the normal due-in from maintenance (DIFM) process. Also, remove serviceable bit and piece parts. Store XB bits and pieces as operating stock or turn-into supply.

8.9.3. Quick Reference Lists (QRL). In conjunction with Logistics Readiness Squadron (LRS), Operations Support Squadron (OSS), Customer Supply Support Maintenance (CSSM) Dedicated Support Element (DSE) solicits and consolidates inputs from all squadrons to initiate a QRL. CSSM distributes the QRL to appropriate workcenters including the aircraft parts store. Accomplish review and validation at least semiannually. The review will include T.O. research to ensure listing of preferred items. Maintenance activities submit proposed additions to the QRL by stock and part number, work unit code, and T.O., figure, and index number. Print the listing by primary air vehicle system using a local format.

8.9.4. Critical Items. The critical item management system identifies and prioritizes supply management for selected items. Provide critical items with premium management to control their issue and repair, to expedite them to the user, and reduce cannibalizations. Each element/workcenter supervisor is the workcenter critical item monitor. Identify critical items on DD Form 1348-1A, **DOD Single Line Item Release/Receipt Document**, and the D23. For additional information on critical items, see AFMAN 23-110. Maintenance critical item monitors:

8.9.4.1. Determine items to add to or delete from the base critical item list.

8.9.4.2. Identify critical items exceeding processing time objectives and determine reasons for not meeting objectives.

8.9.4.3. Bench check, repair or NRTS critical assets before non-critical assets. Repair critical assets within their priority group.

8.10. Equipment Items. Continually review equipment items needed for mission accomplishment. Maintain them in a serviceable condition. LRS personnel assist equipment custodians in researching and preparing documents for gaining authorizations and ordering equipment items. Equipment custodians request equipment, tools and bench mock-ups, using AF Form 601, **Equipment Action Request**, or AF Form 2005, **Issue Turn-In Request**. Supply provides equipment custodians a custodian authorization and custody receipt listing (CA/CRL) listing all authorized and in-use equipment for each account. Check the appropriate allowance standard (AS) for authorizations. See AFMAN 23-110 for procedures on appointing equipment custodians, setting up the proper accounts, ordering, and maintaining equipment items. Organizational equipment custodians must work through LRS to obtain a loan agreement from the Command Equipment Management Office prior to loaning organizational equipment to another installation AFMAN 23-110. Accountable equipment custodians must notify Equipment Management Element of deploying or scheduled to deploy equipment IAW AFMAN 23-110. **NOTE:** (This applies to Air Expeditionary Force (AEF) deployments and Non-AEF deployments). Ensure compliance with capitalized equipment procedures IAW AFMAN 23-110.

8.11. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming. Maintenance sections identify items requiring functional check, calibration, or operational flight programming prior to use. Prepare a list of items, including the repair section's organization and section code, and send the list through the Flight/CC or Flight/Element/workcenter supervisor and maintenance supervision to LRS's chief inspector. The list is updated/validated semi-annually. LRS sends items identified on the list to repair sections when functional check, calibration or programming is due or when serviceability is doubtful. If a part comes in that requires a functional check, ensure it is not restricted in the weapon system -6 T.O. Do not use an aircraft as a test bed for parts.

8.12. Supply Points. Establish supply points within individual workcenters when time or resources required to move items dictate a need. Storage space for the supply points is provided by the supported workcenter. Determine management of the supply point by agreement between the group commanders. Inventory supply point assets semi-annually. The workcenter supervisor assists LRS with the reconciliation and inventory. Establishment of an aircraft parts store and/or flight service center within the maintenance complex reduces the dependence on supply points and or bench stocks. LRS maintains warehouses in both these facilities, stocking assets closer to the point of use. Expenditure of funds and manpower may be reduced by use of these facilities.

8.13. Buildup Items. Maintain items requiring build-up prior to use (i.e. wheels and tires) in supply points in a built-up configuration. Send items to appropriate workcenters for build-up and return them to the supply point for later issue. Use AF Form 1297, **Temporary Issue Receipt**, to control assets sent for build-up when the supply point is operated by LRS. Validate AF Forms 1297 daily if over 10 days old. Establish local procedures to control assets when maintenance operates the supply point and assets are sent to another organization for build-up.

8.14. Supply Reports and Listings. Use supply reports and listings to manage maintenance requirements. Most are provided automatically or generated after supply transactions. Request

others when needed. Attachment 2 (this instruction) lists the most common/important reports and listings.

8.15. Special Purpose Recoverable Authorized Maintenance (SPRAM). SPRAM assets are fault isolation spares, shop standard spares, training spares, -21 technical order (T.O.) spares (alternate mission equipment), test station spares, and stand alone spares. These assets are ERRC XD/XF items, which are controlled and managed as in-use supplies. XF items are not SPRAMS details unless ANG/LGM or a higher authority so directs for a specific program. Identify any additions, deletions, or changes of SPRAM assets to the equipment management section of LRS. A SPRAM monitor and custodian are appointed to manage these assets. The program was developed to provide ANG logistics leaders an automated system to maintain visibility and accountability for recoverable spares being used for other than their primary mission and that are not being reported through any other system. (Ref: AFMAN 23-110, and AFI 21-103, *Equipment Inventory Status and Reporting*).

8.16. Deficiency Report (DR) Exhibit. Material deficiency report exhibit issue, turn- in, and storage procedures are contained in T.O. 00-35D-54 and AFMAN 23-110.

8.17. Time Compliance Technical Order (TCTO) Kit Procedures. TCTO kit management is a joint maintenance and supply responsibility according to TO 00-5-15 and AFMAN 23-110. PS&D initiates requests for kits, parts and tool requirements. Munitions control, test measurement and diagnostic equipment (TMDE), AGE, and EM perform PS&D duties for items that require TCTOs. Transfer aircraft or equipment with TCTOs still pending completion with their applicable TCTO kits. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. AFMAN 23-110, TO 00-5-15, and TO 00-5-1 contains detailed guidance for the transfer of TCTO kits.

8.17.1. The LRS TCTO Kit Monitor:

8.17.1.1. Loads the item record for the TCTO upon receipt of TCTO requirements from maintenance.

8.17.1.2. Annotates the TCTO cover memorandum, received from the QA, with the number of assets in LRS, including WRM that are affected by a TCTO. (**NOTE:** For aircraft supported by contractor operated and managed base supply (COMBS), TCTO kits are stored in the COMBS until they are ready to be installed. Return the memorandum to the QA for filing IAW paragraph 15.12.2.2.3.)

8.17.1.3. Forwards due-out documents produced by SBSS to the PS&D for filing into the TCTO file.

8.17.1.4. Provides notification to the PS&D when locally procured parts or base-assembled kits are complete. SBSS sends the MIS a due-out status notification indicating availability.

8.17.1.5. Takes actions to correct discrepancies identified on the TCTO reconciliation listing (for example, mark-for changes, kit shortages or excesses, and delivery dates past the TCTO remove from service date).

8.17.1.6. Advises PS&D on the status of incomplete kits.

8.18. Workcenter Supply Management.

8.18.1. Maintain AF Form 2413 or AF Form 2005 recording all parts ordered from LRS and

verify status with the daily document register (D04) and the monthly due-out validation listing (M30) or use printouts of requests made via the supply interface in lieu of AF Form 2005 and AF Form 2413. On receipt of parts, discard AF Form 2005 or place in an inactive file.

8.18.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify and UJC and SRD codes.

8.18.3. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

8.18.4. Follow-up with LRS personnel to resolve AWP problems.

8.18.5. Establish procedures for controlling cross-cannibalization of reparable assets to reduce AWP units.

8.18.6. Process supply items requiring a buildup before issue in a timely manner.

8.18.7. Compile a list of items requiring functional check or calibration prior to installation. Review and update at least annually.

8.18.8. Applies to aircraft systems and equipment under 3 levels of maintenance. Compile a list of direct NRTS items in coordination with maintenance squadron back shops and AFREP representative and provide it to LRS for inclusion in the master direct NRTS listing. Review and update at least annually.

8.18.9. Establish a storage area for reusable containers. Consolidation with other workcenters is authorized.

8.18.10. Schedule and control all repair cycle assets through the repair flights based on priority assigned.

8.18.11. Move repairable assets from workcenter to workcenter in an expedient manner. Ensure the proper documentation and container accompany the asset through the repair cycle.

8.19. Local Manufacture. Units publish OIs outlining procedures covering the manufacture of items source coded local manufacture. Include procedures that prevent abuses, specify coordination requirements and approval authority. Local manufacturing is an essential part of unit maintenance support. The applicable end-item TO identifies items subject to local manufacture. Specific procedures are in AFMAN 23-110. When developing OIs:

8.19.1. Identify the approval authority for local manufacture requests.

8.19.2. Requesters use an AF Form 2005, for supply item local requests. Use an AF Form 601, for equipment requests. Provide a drawing, sample, technical data and DD Form 1348-6. Obtain drawings from the Base Engineering Data Service Center (EDSC). Use the Air Force engineering data program governed by AFI 21-401, *Engineering Data Storage, Distribution, and Control*.

8.19.3. Requesters coordinate with the appropriate fabricating section to determine the bits and pieces required to manufacture the item. The LRS local manufacturer manager assists in verifying parts availability.

8.19.4. Requesters identify all sections that have action on the AFTO Form 350, **Reparable Item Processing Tag**, for items requiring multiple section processing.

8.20. Production Scheduling. The repair element/workcenter supervisors establish a production schedule based on priorities. LRS provides the repair cycle asset management listing

(D23) to assist each repair section in this effort. The D23 is provided in both maintenance location and stock number sequence. Repair sections use the D23 to manage the flow of DIFM assets in the repair cycle and to ensure the DIFM status and location is updated.

8.21. Control of AWP Assets and Cross-Cannibalization. Closely control reparable assets in AWP status. Do not consolidate storage areas for AWM and AWP assets. Group commanders negotiate storage of out-sized units. Provide the LRS AWP manager the DIFM document number of the AWP end item and the due-out document numbers of bits and pieces to adjust supply database records for cross-cannibalization actions. LRS requisitions, initiates lateral support, and monitors the status of repair bits and pieces. Repair section asset managers identify unacceptable supply status impacts to the LRS AWP manager. LRS requests disposition for assets with unavailable repair parts. Only dispose of parts on receipt of disposition authority.

8.22. DIFM. Repair sections use the D23 to manage the flow of DIFM assets in the repair cycle and to update DIFM status and location. If a parts request is backordered and the unserviceable DIFM item does not limit or restrict the operational capability of the end item, remove it and send it to the applicable support section for either repair, not repairable this station (NRTS) approval, or condemnation with a subsequent turn-in to LRS (as a credit DIFM) according to TO 00-20-3.

8.23. Bench Check and Repair Policy. Maintenance sections bench check items as part of the on-equipment troubleshooting process. When workload requires, the element/workcenter supervisor determines the priority for bench check actions. Specific procedures for bench check and repair policy are provided in TO 00-20-1. The following general guidelines apply:

8.23.1. Order required parts “fill or kill.” If the part is not in stock and a MICAP condition exists, backorder the new request. Determine local repair capability before requisitioning off-base support or going lateral support.

8.23.2. Remove the suspected item, fill out the AFTO Form 350, and annotate it as repair and return. Attach AFTO Form 350 to the item; place the item in the repair cycle; and annotate the name of the repair section on the form.

8.23.3. Bench-check, repair, take NRTS action, or condemn the item. If the item is repaired or otherwise determined to be serviceable, the repair section informs the support section the item is available for pick-up so on-equipment maintenance action may resume. If the item cannot be repaired, the repair section informs the support section to initiate a backordered request and takes appropriate NRTS and condemnation action on the unserviceable asset.

8.24. Maintenance Turn-Around Record Update (TRN) Processing. Workcenters processing TRNs maintain AF Form 2521, **Turn-Around Transaction Log**. The AFTO Form 350, Part II, is processed using the supply interface to the automated maintenance system. Verify each TRN with the D04. Use TRN procedures only when due-out document numbers cannot be established.

8.25. Maintenance Turn-In to Supply. Workcenters properly tag and secure repair cycle assets in their reusable container. The repair shop complies with environmental control requirements, as specified in TOs. Place documentation with the container. Include AFTO Form 350, Parts I and II, and a condition tag or label with all items turned into LRS. Enter the correct action taken code on AFTO Form 350, Part II. Accomplish proper reclamation and demilitarization actions on condemned repair cycle assets.

8.26. Destruction of TOP SECRET Material Destruction of TOP SECRET material requires a receipt according to AFI 31-401, *Information Security Program Management*. Include a copy of the destruction certificate with the turn-in documentation.

8.26.1. Provide sensitive instruments interior container protection.

8.26.2. Ensure MIS products accompany all engine serial tracked items according to TO 00-20-1 and ANG directives.

8.26.3. Ensure LRS signs the DD Form 1348-1.

8.26.4. Ensure a copy of the LRU/SRU historical record accompanies turn-in of all items.

8.27. User Calibration: Comply with TO 00-20-14 and perform calibration on TMDE designated as user responsibility in TO 33K-1-100.

8.28. Processing the MICAP. Process the MICAP start in Mission Capable (MICAP) Asset Sourcing System (MASS); ensure all pertinent data is included. Upgrade, downgrade and cancel MICAP requirements. (Applies to commands with a Regional Supply Squadron (RSS)).

Chapter 9

SAFETY

9.1. Hazards. All managers and supervisors must incorporate Operational Risk Management (ORM) within the workplace. Identify, eliminate or control, and document hazards to minimize risk associated with uncertainty in the decision-making process. Additional guidance can be found in AFI 90-901, *Operational Risk Management Program*, and AFPAM 90-902, *Operational Risk Management Guidelines and Tools*. Managers and supervisors at all levels must recognize the sources of hazards and apply appropriate safety practices to avoid injuries to personnel and damage to equipment by following established procedures and directives, asking for help when needed, and using the appropriate personnel protective equipment (PPE). Control potential physical, fire, and health hazards by proper training prior to job accomplishment, appropriate work procedures, and supervisory controls IAW AFOSH Standards.

9.2. Hazard Abatement Program. Implement and follow the Air Force Hazard Abatement Program to protect all ANG personnel from work-related deaths, injuries, and occupational illnesses. Under this program, personnel identify potential hazards within the work environment. After hazards have been identified, determine the adequacy of current directives and procedures, provide appropriate training to affected personnel, and provide a method to track and control the training and hazard correction/abatement processes. See Attachment 1, for appropriate AFOSH standards, TOs, and other applicable directives. Document safety plans, actions, hazards, and personnel training with the appropriate AF forms listed below.

9.2.1. AF Form 3, **Hazard Abatement Plan**; AFI 91-301, *USAF Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Program*.

9.2.2. AF Form 55, **Employee Safety and Health Record**; AFI 91-301.

9.2.3. AF Form 457, **USAF Hazard Report**; AFI 91-202, *USAF Mishap Prevention Program*.

9.2.4. AF Form 1118, **Notice of Hazard**; AFI 91-301.

9.3. Air Force Mishap Prevention Program. Implement and follow the Air Force Mishap Prevention Program to protect ANG resources. All ANG personnel have the responsibility under the mishap prevention program to identify workplace hazards, to include equipment and environmental situations that places ANG personnel, equipment, or facilities at risk. After hazards have been identified, assess the risks associated with each hazard, determine and take action(s) needed to reduce the risk by: engineering the hazard out; or imposing procedural actions (operational limits, frequent inspections, protective equipment, or stopping until corrective action is taken); and/or educating and training personnel on the hazards and the safety procedures to be followed to reduce the chances of a mishap occurring. See attachment 1 for appropriate AF instructions, AFOSH standards, TOs, and other applicable directives. Ensure all personnel receive safety, fire protection, and health on-the job training upon initial assignment and whenever there is a change in equipment, procedures, processes or safety, fire protection, and health requirements. Well-trained and educated personnel are the greatest deterrent to mishaps in the workplace. Supervisors document safety-related training on AF Form 55, IAW AFI 91-301.

9.4. Safety Inspections. Accomplish hazard assessment and identification through the application of occupational safety, fire prevention, and health inspections, evaluations, and

surveys. Supervisors perform self-inspections to assess the safety environment of the unit. Most AFOSH standards contain sample checklists for unit self-inspections. Also, use locally developed checklists tailored to specific unit requirements. Wing or base-level safety, bioenvironmental engineering, fire protection, and environmental inspectors conduct unit inspections, evaluations, and surveys according to AFI 91-301 and AFI 32-7086.

9.4.1. Occupational Safety and Health Administration (OSHA) officials, as representatives of the Secretary of Labor, may conduct inspections of nonmilitary-unique workplaces and operations where ANG civilian personnel work. (The inspections may be unannounced). OSHA inspectors may question or privately interview any employee, supervisory employee, or official in charge of an operation or workplace.

9.4.2. Federal OSHA officials may perform OSH inspections of ANG workplaces in areas where the US holds exclusive federal jurisdiction (including government owned contractor operated facilities).

9.4.3. Authorized safety and bioenvironmental engineer officials from states without OSHA-approved OSH plans may exercise jurisdiction over contractor workplaces only when there are no OSHA standards that apply to the work in progress. State OSHA officials, operating under a federally approved plan and subject to the terms of any variance, tolerance, or exemption granted by the Department of Labor, may enforce state OSHA standards in contractor workplaces. At overseas locations, local government agencies may conduct inspections of contractor facilities or operations as stipulated in the status of forces or country-to-country agreement IAW AFI 91-301.

9.5. General Safety Guidance. Aircraft maintenance personnel are exposed to a large variety of hazardous situations, machinery, equipment, and chemicals. Most hazardous situations can be avoided by simply following procedures, asking for help when needed, and using personal protective equipment (PPE). Supervisors must be knowledgeable of the AFOSH Standards, TOs, and AF instructions applicable to their operations and ensure their personnel are educated on the safety requirements applicable to the job. Personnel work more safely and effectively when properly trained and motivated. For example, ensure personnel who work with hazardous chemical are trained as outlined in AFOSH Std 161-21, *Hazard Communications*, on personal protective equipment.

9.5.1. Use the general workcenter safety guidance in AFOSH STD 91-66, General Industrial Operations, AFOSH STD 91-100, *Aircraft Flight Line-Ground Operations and Activities*, and OIs. Follow AFOSH STD 91-66 for safe practices in operation and maintenance of base facilities, such as, buildings and grounds, general housekeeping, ladders, office safety practices, emergency eyewash and showers, and finger ring policies. It also addresses safety precautions for electrical facilities and electronic equipment, such as, electrical emergency equipment, protective equipment, fire prevention, cardiopulmonary resuscitation (CPR), first aid training, clothing and jewelry. It also contains guidance for aircraft hangar operations, tool safety, material handling, fall protection, housekeeping, and operation and maintenance of compressed air systems, maintenance stands, lifting devices, and aerospace ground equipment (AGE).

9.6. Flightline Safety. Adhere to aircraft flightline safety guidance in AFOSH STD 91-100; TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*; and equipment TOs. AFOSH STD 91-100 contains safety guidance for towing and taxiing aircraft, aircraft jacking operations, aircraft cleaning and decontamination, aircraft tire mounting and servicing operations, flightline vehicle operations, and hot refueling. TO 00-25-172 contains safety

guidance for aircraft servicing operations (all gaseous and liquid servicing), aircraft grounding and bonding, concurrent servicing operations, hot refueling, and combat or contingency operations. Follow established procedures in AFOSH Standard 48-19, Chapter 5, *Hazardous Noise Program*, when operating AGE or auxiliary power units.

9.7. Workcenter Safety Guidance. Follow aircraft repair shop safety guidance found in AFOSH STDs 91-66 and 91-100 and equipment TOs. AFOSH STD 91-66 contains safety guidance for particular repair shops, such as welding, parachute, paint, fiberglass repair, fabrication shops, etc. AFOSH STD 91-100 contains guidance for general shop principles, machine safeguarding and shop layout, housekeeping, aircraft painting and paint removal, battery equipment and charging operations. See attachment 1 for AFOSH standards applicable to aircraft maintenance activities.

9.8. Flightline Driving. Motor vehicles operating on the flightline present a clear and possible danger to aircraft, equipment, and ground personnel. Guard against carelessness, haste, and disregard of safety standards. These factors are the primary sources of collisions and personnel injury. All operators of vehicles on the flightline must first obtain training and possess a valid flightline driving permit, and AF Form 483, **Certificate of Competency**. Follow the general safety requirements for flightline vehicle operations found in AFOSH STD 91-100 and AFJMAN 24-306, *Manual for the Wheeled Vehicle Driver*, AFI 13-213, *Airfield Management and Base Operations*, and OIs. Familiarize all personnel authorized to operate vehicles on the flightline with the aircraft marshaling signals found in AFI 11-218.

9.9. Munitions Safety Guidance. Use munitions safety requirements found in AFMAN 91-201, *Explosive Safety Standards*; 11A-, 11P-, and 13A-series TOs (explosive and egress handling safety); AFI 21-112, *Aircrew Egress System Maintenance*; and specific equipment TOs. AFMAN 91-201 contains safety topics, such as, explosive safety program elements, explosive facility licenses, quantity distance criteria, handling of aircraft, remotely piloted vehicles and drones containing explosives, fire protection, storage and compatibility standards, transportation, etc. The 11A-, 11P-, and 13A-series TOs deal with the specifics of handling and maintaining explosive items or components. AFI 21-112 pertains to the handling of egress and escape systems and personnel training, certification, and decertification.

9.10. AFOSH Guidance. Use AFOSH standards where federal standards either do not exist, do not adequately cover a function, contain less stringent criteria, or when consolidation of information is beneficial for use in the workplace. Use Air Force functional directives and technical data in conjunction with AFOSH standards. If conflicting guidance exists, the weapon system specific technical data will take precedence. See attachment 1 for AFOSH standards applicable to aircraft maintenance activities.

9.11. Lockout and Tagout Concept. Use procedures to isolate machinery or equipment (in off-equipment areas) from all potentially hazardous energy. When the unexpected energizing, startup, or release of stored energy could cause injury, machinery or equipment is locked out or tagged out before qualified personnel perform any servicing or maintenance. Instruct all maintenance personnel in the safety significance of lockout or tagout procedures. Find complete guidance for instituting an effective program in AFOSH STD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*.

9.12. Warning Tags. For on-equipment aircraft maintenance, use the AF Form 1492, **Warning Tag**, to "flag" a condition that could cause damage or injury if ignored. The tag is designed to

preclude the inadvertent activation of a system that should not be activated. Do not use the AF Form 979, **Danger Tag**, for on-equipment aircraft maintenance.

9.12.1. Use the perforated bottom portion of the tag to provide a "cross-check" with the aircraft forms. Insert this portion of the tag through the aircraft forms binder ring, aligned with its corresponding entry. Each warning tag must match an existing AFTO Form 781A entry. One AFTO Form 781A entry may contain several warning tags only if they pertain to the same discrepancy.

9.12.2. Units establish an OI for amplification of these minimum requirements.

9.13. Danger Tags. Will only be used when an immediate hazard exists and specific precautions are required to protect personnel or property or as required by TOs, instructions, or other directed requirements. Tags will be placed on damaged equipment and immediate arrangements made for the equipment to be taken out of service and sent to the repair shop. Do not use the AF Form 979, for on-equipment aircraft maintenance.

9.14. Safety Equipment. Hazards should be engineered out, isolated, guarded against or a safer chemical used as a substitute whenever possible before considering the use of personal protective equipment (PPE). PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering or administrative controls. When PPE is required ensure personnel are provide the appropriate PPE for the hazard and are trained in its use, inspection and care. Contact the installation ground safety or bioenvironmental engineering staff for assistance in the selection of PPE. Review AFOSH Std 91-501, *AF Occupational Safety Standard* for additional information on personal protective equipment.

9.15. Confined Spaces. A confined space is any area that is large enough to bodily enter; and has limited/restricted means of entry or exit; and is not designed for continuous human occupancy. The hazards associated with confined spaces are numerous, some example of hazards workers may encounter include atmospheric hazards such as an oxygen enriched or depleted environment; flammable, explosive and toxic gases; and engulfment or entrapment hazards. Many of these hazards are not readily apparent, detectable by odor, or visible, which may result in workers entering confined spaces without consideration of the potential dangers. Commanders, functional managers, and supervisors must ensure all confined spaces that fall under their purview are properly identified, both permit and non-permit required, and implement a confined spaces program as outlined in AFOSH Std 91-25, *Confined Spaces*. Also see AFOSH Std 48-1, *Respiratory Protective Program*, and TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, for specific requirements. Supervisor will ensure all personnel required to enter a confined space are properly trained, equipped, and qualified and that the training is documented prior to entry. For assistance in establishing an effective confined space program contact the installation ground safety office.

9.16. Contracted Operations. AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH)*, does not apply to private contractor employees or the working conditions of private contractor employees working under government contracts (see AFI 91-301, paragraph 9). Contractors are solely responsible for compliance with OSHA standards for the protection of their employees. The Air Force's interest is to protect Air Force personnel and equipment, meaning that specific safety requirements in AFOSH standards or Air Force technical orders must be complied with by contractor personnel when non-compliance would clearly present the potential to harm or damage government resources. Examples include,

but are not limited to, the lockout/tagout program, personnel requirements for specific tasks (i.e. aircraft towing), and use of certain safety equipment that prevents personnel from becoming incapacitated and subsequently damaging resources (i.e. eye protection during aircraft liquid oxygen servicing). The Air Force is not responsible for ensuring that contractors comply with "personal" safety requirements that do not present the potential to damage government resources (i.e. hearing protection, safety shoes, AF Form 55, etc.).

9.17. Use of Cordless tools and Mag lite type flashlights on JP-8 serviced aircraft.

9.17.1. The use of cordless tools and Mag lite type flashlights (or other battery powered tools/flashlights not approved for use in a Class I, Division I, hazardous atmosphere) are authorized for use on JP-8 serviced aircraft as long as the following is adhered to. Interiors (flight deck, fuselage etc.) are not considered a classed environment regardless if the aircraft is hangared or not.

9.17.1.1. Cordless tools will not be used during fuel servicing.

9.17.1.2. Cordless tools/lites will not be used during fuel system/tank/cell maintenance, to include removal of any panels that provide access to fuel cells/tanks, or probes, and engine enclosures.

9.17.1.3. Cordless tools will not be used within 5 feet of a fuel vent.

9.17.1.4. Batteries will not be charged or changed in a Class I hazardous atmosphere.

9.17.1.5. Cordless tools will not be used in the vicinity of known or suspected fuel leaks.

9.17.1.6. Mag lite type flashlights may be used for all routine maintenance actions, to include fuel servicing, as long as they are not used within 1 foot of fuel vents and are 6 volts or less.

9.17.2. A JP-8 serviced aircraft is defined as an aircraft that has been consecutively serviced with JP-8 at least four times.

9.17.3. An OI will be written to ensure cordless tools/flashlights that are not approved for use in a Class I, Division I, hazardous atmosphere are not used on non JP-8 serviced aircraft, if required.

9.18. Use of Cell Phones and Pagers.

9.18.1. No personally purchased communications devices will be allowed on the flightline or in hangar floor areas. (cell phones, pagers etc).

Chapter 10

QUALITY ASSURANCE

10.1. General. QA works directly for the MXG/CC. All personnel share responsibility for quality maintenance and are expected to operate, inspect, maintain and repair aircraft and support equipment in strict compliance with applicable technical data, safety directives, and policy guidance. QA evaluates maintenance personnel and the processes they employ to determine how well these obligations and expectations are met. Cumulative results of these evaluations serve as a barometer for gauging overall health of the maintenance effort. QA evaluates maintenance quality. QA also perpetuates an environment where quality maintenance and personnel safety, equipment reliability, safety of flight, job proficiency, training, and compliance with applicable directives remain at the core of all maintenance inspections and evaluations. QA makes recommendations for improving effectiveness of the maintenance effort and serves as the single unit focal point for oversight of technical activities and product improvement initiatives. Aircraft and equipment condition and personnel proficiency are validated through the QAP. ANG units will use the ANG Quality Assurance Database (QuAD) for documenting QA evaluations. Other QuAD functions may be used at the QA Chief's discretion. At local option, Management Analysis and/or Training Management may be assigned as an integrated part of QA rather than the Maintenance Operations Flight. If this option is exercised, the duties and responsibilities of Training and Analysis are specified in Chapter 5. Civil service and contracted organizations will use the accepted quality program outlined in their respective contract.

10.2. Quality Assurance Responsibilities.

10.2.1. Responsible to the MXG/CC to perform as the primary technical advisory agency for maintenance, assisting workcenter supervisors.

10.2.2. Implements the Quality Assurance Program (QAP).

10.2.3. Manages the Product Improvement Programs (PIP) and other programs to include:

10.2.3.1. Deficiency Reporting (DR).

10.2.3.2. Product Improvement Working Group (PIWG).

10.2.3.3. R&M Working Groups.

10.2.3.4. Technical Order Distribution Office (TODO).

10.2.3.5. One-Time Inspection (OTI).

10.2.3.6. Functional Check Flight (FCF) program.

10.2.3.7. Weight and Balance (W&B) program.

10.2.3.8. Hot Refuel Program.

10.2.3.9. Aircraft and Equipment Impoundment program IAW Chapter 11 of this instruction.

10.2.4. Reviews aircraft aborts, in-flight emergencies (IFE), and other incidents as required using MIS or locally developed form.

10.2.5. Assists PS&D with Configuration Management Program.

10.2.6. Assists PS&D with Time Compliance Technical Order (TCTO) program IAW Chapter

15.

10.2.7. Ensures a unit chafing program is implemented by MDS as applicable. Affected workcenters will assist in the development and instruction of an effective chafing program.

10.2.8. Sortie generation operations (SGO) evaluations as applicable.

10.2.9. Flightline weapons loading inspections/evaluations are the responsibility of WS & QA evaluators.

10.2.10. QA uses their technical expertise to assist the MXG/CC in arriving at informed decisions when coordinating with higher headquarters, Air Force Materiel Command (AFMC), Defense Contract Management Agency (DCMA), and other outside agencies.

10.2.11. Evaluates unit maintenance management procedures, including locally developed forms, publications, operating instructions, etc., for accuracy, intent, and necessity.

10.2.12. Ensures evaluation of the applicable programs in Chapter 18. QA will manage any programs as assigned by the group commander.

10.2.13. Manage JEDMICS Program in accordance with ANGI 21-407.

10.2.14. QAR Program, if applicable.

10.3. QA Training.

10.3.1. Develop a local training plan to train all QA personnel to ensure uniformity in application of inspection and evaluation (I&E) techniques and philosophy. This local training package will cover such things as setting standards for (I&E) techniques to facilitate objective inspection, how to properly document inspection worksheet information, and appropriate actions to take to prevent personnel injury or equipment damage if a major finding is detected. The formal QA inspector course may be used to satisfy the training requirement. Document QA Inspector training in individuals' training records using the AF Form 797, **Job Qualification Standard Continuation Sheet** and/or utilize G081/CAMS to track inspector training.

10.3.2. Document all training on AF Forms 797 and/or utilize G081/CAMS. Personnel will be familiar with all tasks they evaluate or inspect. If not mandated otherwise, the Senior inspector, if assigned, will determine which tasks inspectors must be JQS qualified and certified on before an evaluation or inspection is performed.

10.3.3. Ensure QA inspectors:

10.3.3.1. QA augmentees complete AFI 21-112 certification before evaluating egress tasks.

10.3.3.2. Be familiar with TO 00-25-252 before evaluating welding operations.

10.3.3.3. Comply with training requirements in TO 1-1-3 before evaluating open fuel cell maintenance.

10.3.4. QA personnel, including augmentees, who conduct engine run evaluations are not required to maintain the engine run proficiency requirements outlined in Chapter 18 of this instruction and AFI 11-218. However, if QA evaluators run engines, they will maintain the applicable aircraft proficiency requirements.

10.4. QA Augmentation. If a functional area does not warrant a full-time position in QA or specialized expertise is warranted, select qualified technicians, recommended by maintenance

supervision to be augmentees. QA will maintain a listing of current augmentees. QA in coordination with maintenance supervision establishes the duties performed by QA augmentees. Cross utilization of permanently assigned QA personnel should be encouraged to minimize the use of augmentees.

10.5. Not used.

10.6. Quality Assurance Superintendent Responsibilities. In addition to common responsibilities outlined in Chapter 2 the Quality Assurance Superintendent:

10.6.1. Acts as the primary technical advisor within aircraft maintenance and makes recommendations to the MXG/CC to enhance the quality of maintenance.

10.6.2. Develops the QAP, using the QuAD. Make every effort to fully use a LAN to provide all local supervisors access to QAP data.

10.6.3. Act as group focal point to ensure appropriate actions are taken to notify the ANG/LGMM when deficiencies are found in Air Force or ANG instructions.

10.6.4. Reviews and certifies local OIs and forms for accuracy, intent, and necessity. Refer to AFI 33-360, Vols 1 and 2, *The Air Force Publications and Forms Management Program-Developing and Processing Forms*, for policies on forms management. Reviews and approves all locally developed checklists, check sheets, forms, preprints and T.O. Local Page supplements.

10.6.5. Designate individuals to fill the following key positions;

10.6.5.1. Senior Inspector if applicable.

10.6.5.2. W&B program manager.

10.6.5.3. FCF managers.

10.6.5.4. PIM. Responsibilities may be distributed among inspectors as needed.

10.6.5.5. TODO manager.

10.6.5.6. QARs, when required.

10.6.5.7. Joint Engineering Data Management Information and Control System (JEDMICS) Manager if applicable.

10.6.6. Performs management inspections.

10.6.6.1. Takes action to evaluate group maintenance staff functions (e.g. scheduling, training management) as well as technical activities. Ensures these areas are periodically evaluated.

10.6.7. Monitors the Repair Enhancement program if applicable.

10.6.8. Ensures the group portion of the FOD prevention program is conducted IAW Chapter 18 of this instruction.

10.6.9. Oversees and implements the group impoundment program IAW Chapter 11 of this instruction.

10.6.10. QA will provide assistance to the safety office when investigating dropped object incidents if requested.

10.6.11. Ensures group maintenance actions relating to hot pit refueling are IAW TO 00-25-172,

Chapter 18 of this instruction, applicable technical data, and ANG supplements.

10.6.12. Coordinates on requests for locally designed tools or equipment. QA will ensure records of all approved locally designed tools and equipment, including pictures or drawings, a description of the use for each item, and the owning workcenter are maintained. If a TO contains the option of a locally designed tool QA does not need to coordinate or maintain the records on that tool as long as the tool remains approved by the TO. Reference paragraph 13.6. **NOTE:** Weapons loading and weapons maintenance locally designed equipment will be coordinated through the wing weapons manager.

10.6.13. Monitors the aircraft structural integrity program IAW Chapter 18 of this instruction.

10.6.14. Reviews (annually) and publishes IPI listings. The IPI list is approved by the MXG/CC.

10.6.15. Evaluates maintenance TO files that are kept on aircraft (G files).

10.6.16. Evaluates flight control maintenance.

10.6.17. Reviews and submits depot-level assistance requests developed IAW TO 00-25-107.

10.6.18. In conjunction with maintenance supervision, develops key task and routine inspection listings, provides copy of approved lists to all affected organizations.

10.6.19. May develop standardized Acceptable Quality Levels (AQL)/standards for all tasks including key tasks and routine inspection lists.

10.6.20. Ensures agenda and presentations are developed for the Quarterly QA meeting with key maintenance personnel.

10.6.21. Monitors maintenance crosstells. Distributes maintenance and safety crosstell messages as applicable within the maintenance complex.

10.6.22. Reviews and monitors special certification roster for currency, qualification and applicability. Maintains a signed master copy of the SCR. Note, if MXG/CC option is exercised to combine Training and QA, they may share one signed SCR document

10.6.23. Controls and issues inspector stamps, when used, for QA personnel.

10.7. Senior Inspector Responsibilities: The QA Superintendent may elect to appoint a Senior Inspector or distribute these responsibilities to individual inspectors as appropriate. The Senior inspector:

10.7.1. Provides on-the-spot assistance through assigned inspectors in correcting problems.

10.7.2. Spot-checks TOs, in-use inspection work cards, checklists, job guides, and code manuals during evaluations and inspections for currency and serviceability.

10.7.3. Assists the analysis section with investigations and studies.

10.7.4. Initiates action when additional attention is required to resolve adverse maintenance trends or training problems.

10.7.5. Standardize the master AFTO-series 781 forms according to TO 00-20-1.

10.7.6. Ensures assigned 2W1X1 flightline inspectors complete load crew academic training (annually) and that both flightline and in-shop 2W1X1 inspectors complete all required explosive

safety training.

10.7.7. Reviews Category II major discrepancies quarterly for trends. If frequency or severity of identified discrepancies warrants inclusion of that item into the specific TO governing an action or inspection, the QA Senior inspector submits an AFTO Form 22 or develops a local work card, local page supplement, or checklist (TO 00-5-1).

10.7.8. Establishes procedures for inspectors to document completion of inspections.

10.7.9. Performs inspections on ground training aircraft IAW Chapter 18 of this instruction.

10.8. QA Inspector Responsibilities. QA inspectors will manage programs and perform duties as assigned by the Quality Assurance Superintendent and/or Senior Inspector, if assigned.

10.8.1. Performs evaluations and technical inspections in all maintenance functions, to include MOF and survival equipment, as directed by the MXG/CC.

10.8.2. Periodically evaluate weapons loading and other maintenance actions performed during sortie generation operations.

10.8.3. Perform QA review of dull swords, DRs and Service Reports (SR).

10.8.4. Evaluate forms documentation and MIS inputs.

10.8.5. Perform WRM tank build-up evaluations or inspections (in units with a tank build-up tasking).

10.8.6. Ensures inspection and evaluation reports are loaded into the QuAD.

10.8.7. Reviews and submits wing depot-level assistance requests developed IAW TO 00-25-107.

10.9. The Quality Assurance Program (QAP). The QAP is designed to be a feedback system for maintenance leaders, supervisors, and workers. It provides methods to detect negative trends and problem areas, enhance crosstell and facilitate benchmarking, while allowing latitude to adapt it for local needs. The QAP is not intended to be used for disciplinary actions against personnel and will not be recorded in personnel documents.

NOTE: QA must not focus solely on achieving quotas in each inspection category or report type. QA must coordinate with MDSA to identify trends and recommend projected inspection categories to the MXG/CC quarterly for upcoming quarters. Likewise, do not determine inspection volume, depth, and scope of deficiency research solely by numbers of assigned personnel or equipment. Enhancement of mission performance is the prime factor in applying available manpower and resources.

10.9.1. Elements of the QAP. An effective QAP focuses evaluation and inspection efforts on areas and functions in the groups that require attention and improvement. The QAP includes methods for rating training, processes, and assessing equipment condition. Develop the QAP and administer at a level to allow for MXG/CC flexibility in improving performance. The following minimum standards apply:

10.9.1.1. Major areas examined are personnel proficiency, maintenance process effectiveness, and equipment condition.

10.9.1.2. A rating system that provides a method of applying objective ratings to inspections and evaluations performed by QA (does not have to be rated by QA).

10.9.1.3. The QAP emphasizes compliance-oriented maintenance. The purpose of the QAP is to measure how well units meet or exceed standards. QA will assess how well units are meeting compliance goals and look for areas of opportunity for improvement. The results of the evaluations and inspections are organized into a summary. The following areas will be addressed:

10.9.1.3.1. Compliance with and currency of technical orders and directives. Personnel at all levels are responsible and accountable for enforcing this mandatory standard. Ensure all applicable technical data and directives are complete and current.

10.9.1.3.2. Aircraft and equipment forms documentation. Forms used to document any maintenance related action for aircraft or equipment are documented according to 00-20 series technical orders, specific equipment technical order requirements and applicable command standards and supplements.

10.9.1.3.3. Aircraft and Equipment Inspection. Inspect aircraft and equipment (including munitions) according to technical orders and directives to provide the best possible safety and reliability.

10.9.1.3.4. Validates general compliance and management of Safety, Environmental, and Housekeeping Programs. Personnel at all levels are responsible for minimizing risk to equipment and personnel.

10.9.1.3.5. Training. Verify training is correctly documented to ensure individuals are qualified to perform evaluated tasks.

10.9.1.3.6. Unit Directed Programs.

10.9.1.3.7. Key Task List (KTL). The KTL will cover tasks that are complex and those affecting safety of flight, if determined necessary by the MXG/CC. All maintenance actions/functions listed on the KTL will require mandatory call-in to QA each time the maintenance action/function is accomplished. QA evaluators will normally respond and perform an evaluation, but on a limited basis may waive the inspection. QA will review and update the list at least annually to ensure it encompasses those maintenance actions/functions that directly affect maintenance quality.

10.9.1.3.8. Routine Inspection List (RIL). QA will consolidate maintenance supervisors' inputs and suggested changes and obtain approval of the group commander. Tasks will not be removed from the routine list without approval from group commander. List will contain but is not limited to the following if applicable to the group:

10.9.1.3.8.1. Pre-flight, thru-flight, basic post-flight, HSC inspections.

10.9.1.3.8.2. Aircraft and equipment forms/MIS documentation.

10.9.1.3.8.3. Aircraft ground handling and servicing tasks.

10.9.1.3.8.4. Technical data use and currency.

10.9.1.3.8.5. CTK management.

10.9.1.3.8.6. User maintained TMDE.

10.9.1.3.8.7. AGE maintenance and flightline use.

10.9.1.3.8.8. Housekeeping.

- 10.9.1.3.8.9. Vehicles (including AF Forms 244 and 1800.)
- 10.9.1.3.8.10. Aircraft and equipment washes and cleaning procedures.
- 10.9.1.3.8.11. Environmental compliance.
- 10.9.1.3.8.12. Aircraft launch/recovery procedures.
- 10.9.1.3.8.13. Weapons loading.
- 10.9.1.3.8.14. Weapons maintenance, and munitions build-up.
- 10.9.1.3.8.15. Tail Number Bins (TNB)/Facilitate Other Maintenance (FOM) management.
- 10.9.1.3.8.16. Joint Oil Analysis Program (JOAP) procedures
- 10.9.1.3.8.17. End of Runway (EOR) procedures.
- 10.9.1.3.8.18. Mode 4/Radar Warning Receiver (RWR) checks.
- 10.9.1.3.8.19. Egress maintenance (**Exception:** Egress tasks that require mandatory follow-up).
- 10.9.1.3.8.20. Survival equipment.
- 10.9.1.3.8.21. Borescope procedures.
- 10.9.1.3.8.22. Flight control rigging procedures.

10.9.1.3.9. QA will coordinate with Munitions Plans and Scheduling to ensure all required inspections are performed IAW AFI 21-201. Additionally, QA, in coordination with the munitions element supervisor will develop quarterly standards for the following areas.

- 10.9.1.3.9.1. Munitions accountability.
- 10.9.1.3.9.2. Munitions storage practices and safety.
- 10.9.1.3.9.3. Munitions inspections.
- 10.9.1.3.9.4. Munitions material handling and test equipment.
- 10.9.1.3.9.5. Munitions stockpile.
- 10.9.1.3.9.6. Tactical munitions record system.
- 10.9.1.3.9.7. Munitions infrastructure.
- 10.9.1.3.9.8. Munitions training.

10.9.1.4. Include high-missed carded items from quality verification inspections (QVIs) in the QAP summary. A high-missed carded item is defined as any work card item missed at least three times during a one-month period. Units should use the high-missed carded items to enhance maintenance-training program, detect trends, and basically improve the quality of maintenance.

10.9.2. Evaluation and Inspection Plan. QA develops an evaluation and inspection plan showing areas, types, and numbers of inspections and evaluations that will be conducted. When developing the plan, QA will:

- 10.9.2.1. Address the wing weapons manager and maintenance managers' areas of concern in determining inspection/evaluation priorities.

10.9.2.3. Review, formalize, and distribute the inspection or evaluation plan.

10.9.2.4. Reviews and updates the plan.

10.9.2.5. Use appropriate statistical tools and methods to assist in determining standards.

10.9.3. Evaluations and Inspections. The following types of evaluations, inspections and observations support the QAP: personnel evaluations ((PE) PEs are a **MXG/CC option**), quality verification inspection (QVI), special inspections (SI), Management Inspection (MI), detected safety violations (DSV), technical data violations (TDV), unsatisfactory condition reports (UCR), and when directed, Other Inspections (OI).

10.9.3.1. Personnel Evaluations (PE). (**Optional**) A PE, if used, is an over the shoulder evaluation of a maintenance action or inspection by an individual or team. Use PEs to evaluate job proficiency, degree of training, and compliance with technical data. Individuals performing, supervising, or evaluating maintenance tasks are subject to a PE. Rate PEs pass or fail based on established AQLs/standards. Document the PE on AF Form 2419, **Routing and Review of Quality Control Report**, or in the QuAD.

10.9.3.1.1. When performing a PE, the QA inspector briefs the individual or team on the evaluation and how it will be rated. The evaluation starts when the individual or team begins the task, or portion of the task to be evaluated, and is completed when the job or previously determined portion of the task is finished. Limit the PE to the use of the same inspection card deck or technical data required for the job. When performing an evaluation, the inspector determines if the technician or supervisor performed the job as prescribed by the published technical data and appropriate instructions. Provide feedback to the individual or team and supervision upon completion. The types of PEs are:

10.9.3.1.1.1. Individual Evaluation. A QA over the shoulder evaluation of a maintenance technician or supervisor while actually performing a job. The evaluator may start or stop the task evaluation at any step. PEs may be performed on individuals working alone or while working as part of a team. Evaluations will accurately assess the proficiency of each individual under evaluation.

10.9.3.1.1.2. Team Evaluation. A QA over the shoulder evaluation of maintenance supervisors and technicians completing a team task. A team task is one requiring more than one person (according to approved technical data) to complete the task. For example, refueling, ECM pod up/down loading, bomb build up, towing, weapons maintenance, pylon installation, etc. The evaluator may start or stop the task evaluation at any step.

10.9.3.1.1.3. Evaluator Proficiency Evaluation (EPE). An over-the-shoulder evaluation of a QA inspector while performing a personnel evaluation and technical inspection QA augmentees require annual EPEs. An EPE is required for initial qualification of QA inspectors and QA augmentees.

10.9.4. Rating Personnel Evaluations. QA rates each evaluation based on AQLs/standards. Reference paragraph 10.10. for definition of AQL standards. A failed PE rating means the specific task was not performed within the established AQL/standards. The rating applies only to the specific task evaluated and not to other tasks that a technician or supervisor is qualified to perform. Upon completion of a failed evaluation, the evaluator will provide on the spot feedback. If the workcenter supervisor determines that an individual should be restricted from performing

the task unsupervised, the supervisor annotates the technician's JQS or **Career Field Education and Training Plan** (CFETP) according to AFI 36 2201. Determine ratings as follows:

10.9.4.1. Pass: Number of discrepancies does not exceed AQL/standards.

10.9.4.2. Fail: An evaluation that results in any of the following:

10.9.4.2.1. Number of discrepancies exceeds the established AQL/standards.

10.9.4.2.2. A technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

10.9.4.2.3. A technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

10.9.4.2.4. A technician demonstrates a lack of technical proficiency or system knowledge, or training is not documented.

10.9.4.2.5. A technician commits a safety violation.

10.9.4.2.6. A technician fails to document maintenance actions in appropriate equipment records.

10.9.5. Quality Verification Inspections (QVI). A QVI is an inspection of equipment condition or a maintenance process, an assessment following a maintenance inspection or repair action, or verification that a technician or supervisor properly completed the inspection or repair action. QVIs will not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. Limit QVIs to the use of the same inspection card deck or technical data required for the job. Normally, this inspection does not require disassembling parts, removal of stress panels, or like actions. A QVI for required dash 6 TO inspections may be accomplished by checking a portion of the required card or area. The QVI report should reflect deficiencies by the individual who accomplished the task and identify specific discrepancies. Document discrepancies in active equipment records and forms (i.e., AFTO Forms 781A, AFTO Forms 244 or AF Forms 2420, **Quality Assurance Inspection Summary**).

10.9.6. Discrepancy Categories. Units will use the discrepancy categories as listed or develop a local rating system that accurately captures evaluation results.

10.9.6.1. Category I (CAT I). Detected discrepancies discovered during the follow-up of an inspection or maintenance action. A required inspection/TO procedural item missed or improperly completed on the last inspection or maintenance action. This category is a specific work card item or TO step, notes, caution or warning for a specific condition or action. Use sub-classifications of major or minor to indicate relative severity of the discrepancy.

10.9.6.2. Category II (CAT II). Readily detectable discrepancies discovered during the follow-up of an inspection or maintenance action: An obvious defect, which could have been readily detected by a technician or supervisor, but is not a specific work card item or TO step, notes, caution or warning for that specific evaluated task. Use sub-Classification of major or minor to indicate relative severity of the discrepancy.

10.9.6.3. Definitions of major and minor.

10.9.6.3.1. A major finding is defined as a condition that would endanger personnel, jeopardize

equipment or system reliability, affect safety of flight, or warrant discontinuing the process or equipment operation.

10.9.6.3.2. A minor finding is defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation.

10.9.6.4. Reporting. Report the condition of the equipment to the owning and using workcenters. QA will provide a reference for identified major discrepancies. Review available documents and forms including work cards, job guides, WUC manuals, checklists, AFOSH standards, and 00-series TOs. The review determines accuracy, currency, and compliance with applicable TOs.

10.9.6.5. Rating QVIs. If AQLs are established, the rating will be determined by comparing the number of discrepancies with the established AQLs/standards.

10.9.6.5.1. Pass: Number of discrepancies does not exceed established AQL/standard.

10.9.6.5.1.1. Category II minors will be documented for trends but will not be counted against the AQL.

10.9.6.5.2. Fail: An inspection that results in any of the following:

10.9.6.5.2.1. A technician failed to detect a Category I major discrepancy after completing an inspection, work card, or task requirement.

10.9.6.5.2.2. Number of Category I minor discrepancies exceeds the established AQL/standard.

10.9.6.5.2.3. A technician failed to detect a Category II major discrepancy after completing an inspection, work card, or task requirement.

10.9.6.5.2.4. Technician is not signed off in training records as task proficient.

10.9.6.5.3. Document the QVI in the QuAD. Each QVI is chargeable to the technician or supervisor who signed off/clears the “corrected by” block or “inspected by” block of the applicable maintenance form or equipment record. When evaluating the technician who signed off the “inspected by” block, evaluate only the items normally verified by signing off the “red X”. Only one evaluation will be scored for each inspection.

10.9.7. Special Inspections (SI). SIs are inspections not covered by QVIs, PEs, or management inspections (MIs). SIs may include, but are not limited to, aircraft and equipment forms inspections, CTK, TO files, vehicle inspections, housekeeping, safety practices, FOD program, etc. SIs may be condition, procedural, or compliance oriented. The QuAD will be used to document special inspections. SIs can be non-rated (e.g. courtesy inspection of jacket file, etc.). If rating a SI, rate them pass or fail based on established AQLs/standard.

10.9.7.1. Document File Inspections. Review aircraft and equipment status and historical documents for at least the previous 60 days, if available (reference AFMAN 37-139, *Records Disposition Schedule*). The inspection of munitions historical documents includes CAS-B records or AFTO Form 15, **Air Munitions Serviceability and Location Record**, for location, lot number and condition entries. Report discrepancies found in historical documents to the appropriate supervisor. Do not correct discrepancies unless they are of a historical nature and can be verified from other available documents. Rate the inspections “Pass” or “Fail” based on the findings; highlight discrepancies and identify as QA inspector found. Annotate AFTO Forms

244/245, in section IV/the supervisory review block. Document in the QuAD.

10.9.8. Management Inspection (MI). MIs cover a broad category, however the MXG/CC or QA Superintendent can determine the frequency, scope, and depth of the inspection. Perform these inspections to follow up on trends, conduct investigations, or conduct research to get to the root of problems. MI's are conducted at the direction of the QA Superintendent or may be requested by MXG/CC or other maintenance supervisors. MIs may encompass QVI trends and other inspection data; NMC causes; aborts and trends; in-flight emergency trends; high component or system failure rates; suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders. Report MI results to the requester, and allow them latitude in exploring options prior to implementing corrective actions. MIs can be non-rated and may be counted in QA trends. Examples of MIs could be OAP procedures, EOR procedures, management of reparable components, inspections of the various maintenance Elements (AMXS, MXS, CMF, EMF etc) etc.

10.9.9. Safety, Technical Violations, and Condition Reports (DSV, TDV, UCR). This category represents observed events or conditions with safety implications, or technical violations not related to an inspection or evaluation, which may be considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate. QA documents any of the following conditions:

10.9.9.1. Detected Safety Violation (DSV). An unsafe act by an individual. The inspector will stop the unsafe act immediately. The unsafe act automatically results in a "Fail" rating.

10.9.9.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use, or deviating from technical data instructions. The technician will have knowledge of all general directives (TO 00 series, AFOSHSTD, etc) associated with the job prior to performing the task. However, those directives need not be present at the job site. Failure to use or deviating from technical data automatically results in a "Fail" rating.

10.9.9.3. Unsatisfactory Condition Report (UCR). An unsafe condition, other than a DSV, chargeable to the workcenter supervisor. Document discrepancies as a UCR when it is not possible to determine who created the condition.

10.9.9.4. Acceptance Inspections. Owning workcenters perform acceptance inspections to determine equipment condition and adequacy of depot or contractor maintenance as prescribed by TO 00-20-1. Unit performs acceptance inspections when receiving newly assigned equipment or as a result of aircraft transferring from another unit, command, or depot. QA develops procedures for aircraft acceptance and transfer inspections. Personnel who perform acceptance inspections should be familiar with the general work requirements and knowledgeable of the contract specifications of the work performed at depot. Include procedures for:

10.9.9.4.1. Reviewing the depot/contractor maintenance contract requirements (when available locally).

10.9.9.4.2. Reporting discrepancies found during acceptance inspections (applicable to equipment received from depot and monitor corrective actions (TO 00-35D-54). DRs are sent to the appropriate ALC.

10.10. Acceptable Quality Levels (AQL/standards), if established. An AQL denotes the maximum allowable number of minor findings a KTL task, RIL task, process, or product and may be charged for the task to be deemed rated “Pass.” It must be strict enough that the task, process, or product meets an acceptable level of quality, but isn’t so strict that a Pass rating is unattainable. The AQL is derived from QA performance-based data. Units will develop procedures for determining minimum AQL levels (if used) delineating an “attainable” quality level. Failure to meet an AQL/standard results in the task being rated as “Fail” will comprise the AQL standards for the weapon system RILs.

10.11. ANG Quality Assurance Database (QuAD). Every unit will capture and catalog the minimum data elements depicted in the following paragraphs into the QuAD for trending, crosstell, and benchmarking purposes. Capture assessment and trend data using a database that makes information easily exportable for crosstell and benchmarking purposes. Every effort should be made to fully utilize Local Area Networks and provide all supervisors with real access to the QuAD. Minimum data fields contained in the QuAD will be:

10.11.1. Workcenter: Input the shop code whose process was inspected.

10.11.2. Inspector: Enter the employee number of the inspector

10.11.3. Employee: Enter the employee number/s or equivalent of the person/s inspected.

10.11.4. Date: Enter the date the inspection was completed.

10.11.5. Time: Enter the time of day when the inspection took place (24-hour clock).

10.11.6. Shift: Enter the shift that the actual work was performed on.

10.11.7. Type Inspection Performed: This code reflects the inspection performed. (e.g. SI, QVI, etc.)

10.11.8. Type Work Unit Code (WUC) or Type Event Code (TEC): This code reflects the event being evaluated (e.g. CTK, phase, etc).

10.11.9. AQL/standards (if established): The number of discrepancies allowed for a particular item or process (task).

10.11.10. Inspection Rating: Pass or Fail. (may be rated by MS).

10.11.11. Equipment: Enter the type of equipment assessed.

10.11.12. Equipment ID: Enter the equipment ID. Example of this field would be A/C serial number 91-0387, SG01, etc.

10.11.13. Discrepancy Category: Identify discrepancies as: Major, Minor (Category I, Category II).

10.11.14. Remarks: The narrative of inspector findings.

10.12. Trend Analysis. Production personnel as well as maintenance supervision have unlimited read-only access to the QuAD. Review previous reports to determine if inspected areas have improved or declined. Cross talk established at routine intervals between MDSA, maintenance supervision, and QA personnel is essential. Highlight trends and root causes in the summary.

10.13. QAP Summary. QA will publish summaries at least quarterly, may be electronic.

Compile the summary from inspection data, and program summaries. The QAP summary should include visual information, graphs, narratives, and quality trends identified through inspections and evaluations, discussion of common problem areas, descriptions of successful programs or initiatives. Includes FCF trend analysis, WS evaluations, and W&B data. Groups are encouraged to take advantage of electronic publishing and distribution.

10.14. QAP Meetings. Conduct meetings quarterly to review the QAP data. Meeting will be chaired by QA. Attendees will include MXG/CC, Squadron/flight commanders with maintenance responsibility, squadron maintenance supervision, wing weapons managers, supervisors, inspectors, and analyst. This meeting is a forum for the MXG/CC to direct problem resolution, address maintenance issues and to refine QAP direction. It provides cross-feed to all maintenance activities in the group through review of QA inspections, evaluations, and trends.

10.15. QA Programs. This section describes the specific program responsibilities for QA:

10.15.1. Product Improvement Program (PIP). The Product Improvement Manager (PIM) promotes deficiency reporting and provides a sound PIP based on inputs from maintenance activities. Combined with daily maintenance data reporting, the PIP provides an effective means of improving the Reliability and Maintainability (R&M) of aircraft and equipment. PIP includes the following programs:

10.15.1.1. Configuration Management program; AF Form 1067, and TCTOs.

10.15.1.2. OTI Program.

10.15.1.3. Deficiency Reporting.

10.15.1.4. Improvement Reporting; AFTO Form 22 and AFTO Form 135.

10.15.1.5. R&M as applicable.

10.15.1.6. Productivity, Reliability, Availability, and Maintainability (PRAM) as applicable.

10.15.1.7. TODO.

10.15.1.8. Air Force Repair and Enhancement Program (AFREP): AFI 21-123.

10.15.2. Product Improvement Manager (PIM) Responsibilities. The PIM is appointed by the QA Superintendent and is assigned to QA and is the wing's aircraft and equipment maintenance focal point for promoting the PIP. The QA Superintendent may elect to delegate day-to-day management of the elements of the PIP. The PIM emphasizes and promotes product improvement and ensures maintenance personnel are familiar with them by circulating flyers/newsletters, visiting commanders call, maintenance orientation briefings and routine visits to the maintenance area. These systems, together with the day-to-day maintenance data reporting, provide an effective method of improving the reliability and maintainability of equipment. The PIM responsibilities include:

10.15.2.1. Deficiency Reporting (DR). Deficiency reporting (DR) is the process of reporting prescribed by TO 00-35D-54, USAF Deficiency Reporting and Investigating System, AFCSM 21-578, Product Quality Deficiency Reporting System (PQDR), and TO 00-5-1. The PIM/DR responsibilities include:

10.15.2.1.1. Monitors deficiency reporting process to ensure items are properly loaded in MIS database and are accomplished according to TO 00-35D-54. Warranty information is located in

AFMAN 64-110. Units supporting reconnaissance aircraft comply with warranty deficiency report requirements according to the applicable weapons system logistics support plan (LSP).

10.15.2.1.2. Ensures compliance with acceptance inspection reporting requirements on aircraft returning from depot or contractor maintenance (TO 00-35D-54).

10.15.2.1.3. Ensures procedures are followed for submitting DRs. The DR will be adequately defined, meet the criteria of the governing instruction or TO, and will be investigated, when necessary.

10.15.2.1.4. Ensures background information and definitive information on suspected deficiencies is submitted.

10.15.2.1.5. Verifies each report against pertinent publications and assigns the appropriate precedence and category.

10.15.2.1.6. Screens reported TO deficiencies for possible unit-unique contributing factors. Initiate management action on unsatisfactory conditions resulting from local procedures or a lack of technical capability.

10.15.2.1.7. Performs or coordinates on a technical review of deficiency reports returned to the unit without an adequate response. Determine whether to resubmit with additional information.

10.15.2.1.8. Maintain a file for all R&M deficiencies (non-quality) reported by the maintenance units, but not meeting the criteria for submission to AFMC. These deficiencies are tracked on a product improvement worksheet, according to AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability* for future PIWG action, if required for specific weapon systems.

10.15.2.1.9. Review the DR prior to releasing to the Air Logistics Center (ALC) or System Program Office (SPO) by following procedures in TO 00-35D-54. Performs exhibit-processing oversight by coordinating with ALC, LRS, and transportation to ensure proper exhibit control and handling.

10.15.2.2. AFTO Form 22, **Technical Order Improvement Report and Reply**: AFTO Form 22 is used to submit corrections and improvements in TOs. The PIM will as a minimum perform the following:

10.15.2.2.1. Investigates each TO improvement report to ensure the deficiency is valid. The PIM will insure proper evaluation was performed, forms are properly filled out and processed IAW TO 00-5-1 and ANG supplement. Weapons Standardization reviews and approves all AFTO Form 22s for weapons loading TOs. WS will fill in Block 9 and indicate "Approval / Disapproval" in Block 1.

10.15.2.2.2. Assigns control numbers and forwards all AFTO Forms 22 via e-mail transmission or Joint Computer-Aided Acquisition Logistics Support (JCALS) to the appropriate action agency (consult TO 00-5-1 ANG supplement).

10.15.2.2.3. Maintains an AFTO Form 22 suspense file. Keep the approved AFTO Forms 22 until incorporated in TOs. However, approved AFTO Form 22s do not constitute authority to deviate from established TOs.

10.15.2.2.4. Conducts a technical review of disapproved AFTO Forms 22 to determine whether to resubmit with additional information. Evaluate for submission to technical working groups (e.g. PIWG, MDS maintainer's conferences). Dispose of disapproved AFTO Forms 22

according to AFMAN 37-139, *Records Disposition Schedule*.

10.15.2.3. AFTO Form 135, Source, Maintenance, and Recoverability Code Change Request: The Source, Maintenance, and Recoverability (SMR) process is a means for maintenance technicians to recommend routine and priority changes to SMR codes. The PIM responsibilities are:

10.15.2.3.1. Processing and managing AFTO Forms 135, (IAW TO 00-25-195). Track the status of AFTO Forms 135.

10.15.2.3.2. Conducts a technical review of AFTO Forms 135 returned from depots and item managers with an unsatisfactory answer to determine whether to resubmit with additional information. Evaluate for submission to technical working groups (e.g. PIWG, MDS maintainer's conferences).

10.15.2.3.3. Coordinates repair evaluation meetings when approved AFTO Forms 135 affect several workcenters.

10.15.2.3.4. Serves as focal point for base level repair and manufacturing capability (base self-sufficiency). Interfaces with maintenance, LRS, and the AFREP manager to support enhanced base repair initiatives.

10.15.2.4. Reliability and Maintainability (R&M). At the core of Air Force R&M efforts are technical working groups (e.g. PIWG, MDS maintainers conferences, Component Improvement Program). Forward inputs IAW AFI 21-118. Assessing unit R&M concerns is twofold. First, review all reported R&M deficiencies and determine those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Analysis and LRS provide the majority of this information. The PIM:

10.15.2.4.1. Consolidates functional area reports for each system e.g., AGE, weapons, PMEL, avionics, engines, commodities and airframe. Prioritize proposed items for a particular system according to weighted factors in AFI 21-118. The PIM conducts R&M working group meetings with supervisors and technicians when it is determined beneficial to ensure quality inputs to technical working groups to solicit ideas to enhance product improvement. These meetings are chaired by the MXG/CC or designated representative. Prepare an agenda and keep meeting minutes.

10.15.2.4.2. Distribute technical working group (i.e. PWIG, Maintainer's Conference,) minutes and ALC corrective actions to appropriate workcenters.

10.16. Technical Order Distribution Office (TODO). TO 00-5-2 provides criteria for establishing levels of TO distribution activities. The TODO ensures TOs are managed according to TOs 00-5-1, 00-5-2, ATOMS Users Guide and AFPD 21-3, *Technical Orders*. At non-nuclear bases the special weapons TO account may be maintained by QA/TODO. All initial distribution and requisition requirements are sent through QA for processing. Based on requirements, QA sets up T.O. series initial distribution requirements. This ensures receipt of TCTOs that apply to equipment maintained, owned, or operated within the Wing. If the Wing has implemented the JCALS program, or assumed Wing TO responsibilities, QA will ensure they are on requirements for all TCTOs series utilized within the Wing. Sub-functions of the TODO are described below.

10.16.1. The QA Technical Order Distribution Office (TODO) will:

10.16.1.1. Coordinate with the appropriate QA subject matter expert for each incoming TCTO to determine applicability. The QA subject matter expert evaluates TCTOs, OTIs, or modifications by reviewing the technical, managerial, and documentation aspects, and reports any deficiencies.

10.16.1.2. Date stamp TCTOs to reflect the date the hard copy is received. The compliance period for the electronically transmitted TCTOs begin at the time the message is received by TODO. Coordinate with the appropriate QA subject matter expert to determine applicability by aircraft serial number for aircraft TCTOs, engine serial number for engine TCTOs, and by part number or other specific criteria for commodity TCTOs. Date stamping all TCTOs with the date received indicates QA has reviewed the TCTO and that it is applicable. Only date stamped TCTOs are authorized for use. All TCTOs received from outside agencies will be routed through QA for the review process.

10.16.1.3. Provide copies of the TCTO to the workcenters doing the work, LRS and Hazmat, as required). Mark these TCTOs as "working copy". Do not place these working copies in a formal TO file. Upon completion of TCTO, all working copies will be destroyed.

10.16.1.3.1. Provide a file copy of the TCTO to PS&D.

10.16.1.4. To ensure effective distribution, TODOs will review Address Information Group (AIG)/Defense Message Service (DMS) and TO related distribution mail lists to check for inclusion and ensure receipt of interim TCTOs. TODO will establish AIG/DMS requirements with the AIG/DMS owner as well as the local base distribution center per requirements in TO 00-5-2 and AFMAN 37-126, *Preparing Official Communications*.

10.16.2. QA Central TO File. At a minimum, the QA file contains general and procedural TOs and copies of all TCTOs pertaining to the equipment owned, operated, or maintained by the wing within the aircraft maintenance organizations. The file is kept to meet QA requirements, not to duplicate TOs held by maintenance workcenters. File TOs IAW TO 00-5-2.

10.16.3. Automated Technical Order Management System (ATOMS). In addition to its designed purpose as established in TO 00-5-2 ATOMS (automated) serves as a locator for maintenance TOs. Updates are based on information from requisitions from TODAs in the operations and maintenance squadrons.

10.16.4. TODOs on line with Joint Computer Aided Logistic Support (JCALS) will use JCALS as the primary TO management system and are not required to maintain ATOMS. All TODOs, not on line with JCALS, will use ATOMS to establish and maintain records for all TOs required and distributed by organization shops and offices serviced by the TODO (00-5-2).

10.16.5. Local Work cards, Job Guides, Page Supplements and Checklists. Limit use of local work cards (LWC), job guides (LJG), page supplements (LPS) or checklists (LCL) to accomplish maintenance on ANG equipment. Locally prepared technical instructions will not be used to circumvent Air Force Materiel Command's inherent responsibility for technical data (See TO 00-5-1). The TODO will review and manage all locally developed products IAW TO 00-5-1/2 and their respective ANG supplements. Ensure LWCs, LJGs, LPS, and LCLs are reviewed for currency when source reference data changes. Develop local guidance for complying with these policies.

10.16.6. To ensure effective and timely TO and TCTO distribution, TODOs are responsible for identifying the proper addressees for message distribution to receive interim Operational/Safety supplements TCTOs. TODO will establish distribution requirements per requirements in TO 00-

5-2 and AFMAN 37-126, Preparing Official Communications.

10.16.7. TO Change Notification. TODO prepares a list of all changes and revisions to indexes, TOs, inspection work cards, and checklists. This list includes TO number and date of receipt. Publish and distribute weekly. This list will be included in the wing's weekly maintenance plan and flying schedule. Supervisors review the list of changes and ensure all personnel are aware a change or revision has been received. Additionally, "Immediate" action TCTOs must be dealt with upon receipt, and "Urgent Action" TCTOs, safety supplements, and interim supplements must be brought to the attention of supervisors within 24 hours of receipt. This list may be published in an electronic format as part of the Weekly Maintenance Plan.

10.16.8. TO File Inspections. The QA TODO inspects other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. As a minimum, the TODO will use the TODO and TO Account Checklist provided in TO 00-5-2. As part of this inspection the TODO should evaluate and ensure whether the TODO/TODA has received the proper training.

10.16.9. TODO periodically spot checks workcenter T.O. files, and follows up within 90 days when non-compliance is noted.

10.17. One-Time Inspections (OTI). OTIs are normally look-only actions to verify the existence of suspected equipment conditions or malfunctions.

10.17.1. ANG and Local OTIs. Process and manage ANG or local OTIs with the same procedures as a TCTO issued from ALC. ANG or MXG/CC initiate OTIs. OTIs are issued with a data code consisting of a unique alpha prefix ("J" for ANG, "L" for local) and a six character sequence number. For local OTIs, the six remaining characters identify the originating wing, year issued, and a sequence number (for example, L181001, L for local OTI, 181 for 181FW, 0 for the year 2000 and 01 for the first in the sequence. For ANG OTIs, the six remaining characters identify the year, month of issue, and a sequence number (for example, J 812010 the tenth ANG OTI issued during December 1998). The data code is used to report and control OTI compliance.

10.17.1.1. OTI Contents. Minimum contents include statements of:

10.17.1.1.1. Title.

10.17.1.1.2. Applicable Equipment.

10.17.1.1.3. Date OTI was issued.

10.17.1.1.4. Data Code.

10.17.1.1.5. Type or category, i.e., immediate, urgent, routine action.

10.17.1.1.6. Background, purpose, or reason.

10.17.1.1.7. Compliance period.

10.17.1.1.8. Remove from service date.

10.17.1.1.9. Recession date.

10.17.1.1.10. By whom to be accomplished (AFSC and man-hours required).

10.17.1.1.11. Tools required

10.17.1.1.12. How work is to be accomplished (give detailed and specific step by step instructions).

10.17.1.1.13. Operational checks (if required to verify operational status, list TO references).

10.17.1.1.14. Record actions.

10.17.1.1.15. Compliance reporting (ANG/LGM may require periodic status).

10.17.1.1.16. OPR (OTIs drafter, include name and telephone number).

10.17.2. OTI Distribution. OTIs are sent to all applicable organizations. The Quality Assurance Superintendent will determine crosstell value for OTIs to lead commands for the equipment or MDS.

10.18. Monitoring the Configuration Management (CM) and Modification Process. QA's responsibilities include reviewing, submitting and tracking unit modification proposals being worked by ANG/LGM, and ensuring proper implementation of approved modification instructions or TCTOs. Follow procedures outlined in paragraph 15.12. for specific QA responsibilities in the TCTO process.

10.18.1. Monitors compliance of TCTOs and determines evaluation coverage that is directly related to the complexity of the TCTO as well as to the criticality of the system or the component to be modified. QA monitors the quality of the first job and performs kit proofing as required. Report any deficiencies to appropriate agencies. Munitions and special weapons TCTOs are reviewed by the respective sections. QA is the sole authority for determining applicability.

10.18.2. QA ensures command directed modifications are documented in the same manner as TCTOs. QA maintains a copy of command modification instructions on file until they are formally rescinded or removed from the equipment.

10.18.3. Participates in all TCTO planning meetings and will be notified by the performing workcenter when work is started on the first TCTO, OTI, or modification for aircraft and equipment.

10.19. Functional Check Flights (FCFs). The MXG/CC and OG/CC have joint responsibility for the FCF program. The requirement for an aircraft FCF is based on technical data and decisions exercised by commanders at all levels through their maintenance officers. The guidance contained in this instruction is designed to be used in conjunction with the additional guidance contained in the following directives: AFI 11-401, *Flight Management*; AFI 11-206V3, T.O. 1-1-300, *Acceptance/Functional Check Flight and Maintenance Operational Checks*, T.O. 00-20-1, and applicable -6 and -1 technical orders. This instruction does not provide single source guidance for the implementation and execution of the FCF program. **EXCEPTION.** Units with C-21, C-22, C-26, C-130, C-141, C-5, and KC-135 series aircraft rarely perform FCFs, and are exempt from the following requirements contained in this instruction: initial checkouts, initial certification letters, annual certifications, and FCF currency requirements. When these aircraft require a FCF, the Operations Group Commander issues temporary written certification designating the most highly qualified crew available. OG/CC, FCF Officer In Charge (OIC), and QA ensure crews are thoroughly briefed on specific FCF requirements and procedures. File certification letters with the FCF program manager.

10.19.1. Responsibilities. Due to the cross-functional nature of the FCF program, effective development and execution of the program requires close coordination between operations and

maintenance. MXG/CC and OG/CC will appoint specific program managers to oversee the functions of the FCF program that specifically relate to their organization. For the MXG this will be the QA Superintendent. Jointly established OIs will be developed and implemented on all FCFs. The MXG/CC and OG/CC are responsible for ensuring compliance with these procedures.

10.19.1.1. Operations Group FCF OIC. This individual is FCF-qualified in a unit mission aircraft, and can serve as checkout pilot in mission aircraft.

10.19.1.2. QA, in conjunction with the operations FCF OIC, is responsible for implementing an effective FCF program.

10.19.2. The operations FCF OIC will ensure that the following crew requirements are met.

10.19.2.1. Normally the number of FCF crews does not exceed four per squadron. Units with unique-mission requirements may waive the number of assigned crews at the discretion of the OG/CC. Crew members required to perform duties/events directed in the FCF flight profile are certified on a locally developed certification letter. This certification is accomplished after the crew member performs the initial checkout and meets flying hour requirements.

10.19.2.2. If the necessity arises for an FCF during a TDY when an FCF crew is not available, the OG/CC may issue temporary certification, designating the most highly qualified crew available to perform such duties. In addition, the OG/CC ensure crews are briefed on the provisions of T.O. 1-1-300 and are completely familiar with local FCF procedures.

10.19.2.3. The initial checkout and annual certification program for applicable crew members consists of, but is not limited to:

10.19.2.3.1. A comprehensive briefing by the Operations Program Manager on the following:

10.19.2.3.1.1. Procedures listed in this publication.

10.19.2.3.1.2. The publications listed in this section.

10.19.2.3.1.3. Local FCF procedures for the type of aircraft being flown.

10.19.2.3.1.4. The applicable -6 worksheets.

10.19.2.3.1.5. FCF procedures for aircrew training devices (ATD) when devices are possessed by the wing.

10.19.2.3.1.6. Map of local FCF area or route of flight.

10.19.2.3.2. A complete FCF aircraft flight profile (except helicopters) with a certified FCF pilot.

10.19.2.3.3. Checkout may be accomplished in conjunction with an actual FCF. A chase aircraft not requiring an FCF or operational check is used for single seat aircraft. Crewmembers for multiple seat aircraft fly a complete FCF profile with an FCF-certified crewmember for the corresponding crew position if aircraft size or seating capability permits.

10.19.2.4. If an ATD is possessed by the wing, a complete ATD FCF profile is flown under the supervision of a certified FCF pilot prior to the aircraft flight.

10.19.2.5. Additional FCF checkout sortie requirements are determined locally, based on the complexity of the aircraft and the qualifications/proficiency of the prospective FCF crewmember.

10.19.2.6. FCF pilot currency for single seat aircraft is 120 days. To update currency, FCF pilots may accomplish a complete ATD FCF profile or an actual FCF flight. Non-current FCF pilots will not perform FCF duty's until currency is regained. To regain currency, FCF pilots accomplish a FCF in the ATD with a certified FCF pilot. If an ATD is not possessed by the unit, currency may be regained by accomplishing an academic review of the requirements of paragraph 10.19.2.3 and applicable emergency procedures with a current FCF pilot or operations squadron supervisor. Currency may also be regained by flying an FCF profile with a certified FCF pilot, either as a chase or in the rear seat of a two-seat model (if applicable). If an FCF pilot does not accomplish an ATD or aircraft FCF profile for more than 1 year, the initial checkout procedures in paragraph 10.19.2.3 will be accomplished.

10.19.2.7. Any FCF crewmember, who loses AFI 11-401 aircraft qualification for over 6 months, will not perform FCF duties until reaccomplishment of initial checkout.

10.19.2.8. For single engine aircraft, pilots maintain Simulated Flameout (SFO), and landing currency IAW applicable 11-MDS series guidance. OGs possessing newly assigned aircraft may waive the minimum hourly criteria of this publication (up to 1 year from the start of unit conversion) and select the most qualified crewmembers for FCFs.

10.19.2.9. Use the following minimum hourly criteria, including student time, to designate pilots to perform FCF duties.

10.19.2.9.1. 750 hours total and 200 hours first pilot PAA time.

10.19.2.9.2. 650 hours total and 300 hours first pilot PAA time.

10.19.2.9.3. 575 hours total and 400 hours first pilot PAA time.

10.19.2.9.4. Helicopter pilots designated as FCF co-pilots will be selected by Unit Commander and will follow minimum qualification criteria listed below:

10.19.2.9.4.1. Be current and qualified with a minimum of 200 hours total time and 100 hours assigned airframe time.

10.19.2.9.4.2. Complete unit FCF Training Program.

10.19.2.10. Flight engineers/flight mechanics must have at least 1250 hours total time and 250 hours PAA time. **EXCEPTION.** Helicopter flight engineers must be current and qualified in type aircraft to be checked.

10.19.2.11. Other crewmembers are current and qualified in the type aircraft and crew position to be checked.

10.19.2.12. The crew size for an FCF is the minimum crew necessary to perform required maintenance checks and is never less than the minimum crew as stated in the applicable -1.

10.19.3. Flight Requirements:

10.19.3.1. Do not shut down engines while airborne unless specified in the -6 T.O.

10.19.3.2. Do not fly FCFs in conjunction with other missions or training requirements, unless waived by provisions in T.O. 1-1-300.

10.19.3.3. Follow weather conditions contained in T.O. 1-1-300 at all times unless aircraft are urgently required for operational commitments. Waiver provisions are outlined in T.O. 1-1-300 for the type and model of aircraft involved.

10.19.3.4. Conduct FCFs during daylight hours only, except for aircraft with four or more engines, unless waived by provisions specified in T.O. 1-1-300.

10.19.3.4.1. Establish local FCF OIs (jointly developed by maintenance and operations) for any specific local aircraft requirements (that is, configuration), administration, control, and documentation of the FCF, OCF, and high-speed taxi check programs.

10.19.3.5. Fly and report supersonic flights IAW AFI 13-201, *Air Force Airspace Management*.

10.19.3.6. Fly FCFs using radar control to the maximum extent possible. Whenever practical, an IFR clearance is filed (except helicopters). In cases where FCF areas are not controlled by ground radar agencies, radar monitoring is used, if available.

10.19.3.7. Follow aircraft -6 T.O. warnings and cautions restricting FCF profile at particular phases of the FCF. Local procedures for FCF profiles include the applicable -6 restrictions.

10.19.3.8. Fly FCFs for a single engine change on a two-engine aircraft if that aircraft will next fly an extended over-the-water flight, i.e., overseas deployment. This applies to engines with no operating time since major maintenance. It does not apply to engines obtained from donor aircraft with established operating time.

10.19.3.9. Require a clean configuration whenever FCFs are flown for flight controls, fuel controls, or engine changes. Do not remove fixed wing pylons, fixed wing tip tanks, and fixed external stores unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signaling propagation, etc.

10.19.4. Unit Procedures. As a minimum, units establish and publish local OI to include, when applicable:

10.19.4.1. Fuel Load.

10.19.4.2. Expanded preflight check by the aircrew.

10.19.4.3. Ground procedures (compass swing, taxi check).

10.19.4.4. Radio procedures.

10.19.4.5. Radar control procedures.

10.19.4.6. Procedures to enter test area.

10.19.4.7. Control bailout area.

10.19.4.8. Control jettison area.

10.19.4.9. Emergency landing base.

10.19.4.10. Debriefing procedures.

10.19.4.11. Procedures to adequately prepare, perform, and debrief ATD FCFs.

10.19.5. QA:

10.19.5.1. Monitors all FCFs according to the appropriate -6 technical order, T.O. 1-1-300, and other pertinent directives.

10.19.5.2. Notifies maintenance and operations scheduling as soon as possible when requesting FCF crews.

10.19.5.3. Ensures each FCF crew is briefed on the documentation requirements for the AFTO Form 781 series and the -6 T.O. FCF checklists, when applicable.

10.19.5.4. Ensures an information file, may be electronic, for briefing FCF flight crews is maintained. As a minimum, the file contains the following items:

10.19.5.4.1. Mission profile for each type of assigned aircraft, consisting of checks to be accomplished, presented in consecutive order.

10.19.5.4.2. OIs concerning FCF procedures.

10.19.5.4.3. A FCF checklist for each type of assigned aircraft.

10.19.5.4.4. T.O. 1-1-300, or memo of T.O. location.

10.19.5.4.5. List of authorized FCF crewmembers signed by the Operations Group Commander.

10.19.5.5. Reviews the FCF checklist and the aircraft forms with the FCF crew during debriefing to determine all requirements were accomplished. Tape recorders may be used IAW AFI 11-206, *General Flight Rules*, to provide detailed accounting of in-flight discrepancies, assist troubleshooting and aid in debriefing. Forwards the completed FCF checklist to the appropriate PS&D for filing in the document file of the aircraft. After corrective action is complete, reviews AFTO Forms 781A for adequacy of the corrective action.

10.19.5.6. Reviews the AF Form 2400, **Functional Check Flight Log** or similar automated product, monthly for trends indicating problems requiring further analysis or corrective actions. If an automated product is used, all information currently tracked on the AF Form 2400 is tracked in the computer.

10.19.6. When an FCF is required on transient aircraft, QA at the transient base serves as the focal point for coordination between the owning organization, the host operations group, and the transient alert function, as required.

10.19.7. FCF Aborts. An air abort due to a condition other than the one that generated the FCF is not counted as an FCF non-release, provided the original condition requiring the FCF checked good. Enter new discrepancies on AFTO Forms 781A.

10.19.8. Waivers. OGs may authorize temporary waivers to this publication, for aircrew qualification, when operational requirements dictate. Permanent waivers, not otherwise granted in this publication, require ANG/XO and ANG/LG approval. Requests for permanent waiver of FCF aircrew qualifications contained in this publication are normally submitted through channels to ANG/XOO.

10.20. Operational Check Flights (OCF). Units will establish and publish an OCF OI. OCFs will be kept to a minimum and are not used to replace -6 FCF requirements. OCFs will be flown by experienced aircrews (not required to be an FCF qualified aircrew) and will be accomplished following the same maintenance criteria as FCFs. Fly OCFs when an operational check is listed as a -1 or -2 requirement.

10.21. Inflight Operational Checks. Maintenance must document the reason for the inflight checks. Inflight checks are accomplished:

10.21.1. When test equipment does not exist to perform the operational check on the ground.

10.21.2. At the request of maintenance to validate a maintenance action that cannot be fully verified on the ground.

10.22. High Speed Taxi Checks. High speed taxi checks may be utilized instead of FCFs with MXG commander authorization, when a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds to operationally check completed maintenance. This procedure should rarely be used (if at all) due to the potential for aircraft damage; FCFs are preferred over high speed taxi checks. Perform high speed taxi checks with qualified FCF aircrews. If this option is exercised, process aircraft forms through QA using FCF procedures. QA develops an aircrew briefing checklist specifically for high speed taxi checks, to include the required FCF briefing items and pertinent warning, cautions, etc.

10.22.1. To minimize brake and tire wear, configure aircraft with the minimum fuel practical to accomplish high-speed taxi checks. Ensure aircraft is prepared for flight and the Exceptional Release (ER) is signed off. Do not conduct high speed taxi tests, self-propelled movement of the aircraft, or any operation where the possibility of becoming airborne exists, with less than -1 operational fuel minimums onboard.

10.22.2. Aircrews performing high-speed taxi checks will complete a take-off data card to indicate the highest speed expected to ensure sufficient stopping distance is available for existing runway conditions without exceeding normal brake energy limits. For aircraft equipped with an arresting hook, taxi checks of speeds 100 knots or above require the hook to be lowered once the pilot begins to initiate braking action. For taxi checks below 100 knots, the pilot lowers the hook if there is any doubt about stopping the aircraft within the bounds of the remaining runway.

10.23. Weight and Balance (W&B) Program. Maintain strict accounting of aircraft weight and balance for safe flight operations. Each unit manages a Weight and Balance program, ensuring accurate inventories of aircraft weight. As the W&B authority, the QA Superintendent appoints a QA individual to be the unit weight and balance program manager.

10.23.1. Weight and Balance Manager Responsibilities. The weight and balance program manager ensures compliance with appropriate technical order procedures for weighing aircraft. The W&B program manager carries out their responsibilities with assistance of W&B technicians. The QA weight and balance technician verifies scale readings and does or oversees the actual computations. The QA weight and balance technician supervises the preparation, leveling, and weighing of the aircraft IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*. QA W&B Program technicians are not required to participate in aircraft preparation, but are responsible for ensuring preparation is properly accomplished. The W&B program manager ensures:

10.23.1.1. Sufficient personnel are qualified on assigned aircraft IAW TO 1-1B-50.

10.23.1.2. Complete dash 21, alternate mission equipment, life support equipment, etc. weight and balance inventories IAW applicable directives and upon return to home station from any ALC or contractor facility where extensive maintenance was performed. Complete weight and balance inventories prior to the first flight after arrival.

10.23.1.3. All assigned aircraft are weighed IAW applicable directives. Keep weight and balance documents required by TO 1-1B-50 for each assigned aircraft. Use the automated weight and balance system (AWBS), and keep a back-up copy of all weight and balance documents.

10.23.1.4. Procedures are written by QA for routing completed TCTO and modification information for weight and balance changes.

10.23.1.5. QA W&B qualified technician inspects weight and balance documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy.

10.23.1.6. Essential weight and balance data and changes to the basic weight and moment are available for appropriate mission planning (e.g. Standard Configuration Loads, updates to supplemental handbook, etc.). This information will also be provided to OG/ Stan Eval for their information and use.

10.23.1.7. Units maintain and store W&B equipment if applicable.

10.23.1.8. QA and squadron Maintenance Supervisions work together in developing a W&B Preparation Checklist if the aircraft dash 5 technical order is not comprehensive enough for the task.

10.23.1.9. W&B manuals are maintained for Class I and II aircraft in a central file. Maintain and store Class I and Class II aircraft W&B handbooks according to TO 1-1B-50. The method of supplemental handbook storage and physical location will be standardized by the lead command for like MDS. **NOTE:** Manage commercial derivative aircraft according to FAA procedures, contract specifications, and the manufacturer's maintenance manuals. The CLS contractor is responsible for managing W&B programs on these aircraft.

10.23.1.10. W&B certification is tracked on the SCR.

10.24. Chafing Program. A Unit chafing program is implemented by MDS as applicable, and is optional for other MDS units as directed by the MXG/CC. QA will monitor and track instances of wire, harness, and metal line/tube chafing. A randomly selected 10 percent of assigned aircraft are inspected when notification is received of a potential chafing problem involving like model, lot number, or block of aircraft. Ideally, select aircraft currently undergoing maintenance or scheduled inspection for random sampling to reduce manpower expenditures.

10.24.1. QA will recommend initiating an OTI if the majority of the sampled aircraft show chafing, or the detected chafing is an operational safety hazard.

10.24.2. QA evaluates and determines if crosstells, DR's or SR's are required when chaffing is identified then submits when necessary.

10.24.3. QA will develop local chafing inspection work cards for periodic, pre-flight, thru-flight, and basic post-flight inspections, if needed (do not duplicate dash-6 TOs). Ensure inspectors inspect at least 50% of accessible areas, focusing on known chafing areas and work cards dealing with chafing.

10.24.4. QA will utilize a database for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance crosstell reports. Consult the database before

expending man-hours performing inspections. This could preclude duplication of effort or re-inspection if updated in the automated program.

10.25. Quality Assurance Representative (QAR). If a Contractor Logistic Support (CLS) aircraft or Contract Field Team (CFT) is assigned, a QAR will be appointed. A QAR is the on-site government inspector and is the liaison between contractor and government personnel at each applicable base. Through administrative actions they coordinate, process, and review documents required to enable successful implementation of the contract. They evaluate the contractors' ability to fulfill the requirements of the contract statement of work. They document contract deviations and provide those to the site manager for necessary corrective actions and coordination. Through system malfunctions or anomalies, the QAR determines the need for government-requested special inspections. They may coordinate all requests for additional support for the contractor with the host and submit recommended contract changes through appropriate channels. They may review or coordinate on host-tenant support agreements affecting contractor support.

10.25.1. Wings will:

10.25.1.1. Appoint QARs. QARs will attend formal training.

10.25.1.2 Forward a QAR letter of appointment to ANG/LGM and appropriate ALC.

10.25.1.3. Ensure services, equipment, and materials, etc. are not provided to the contractor at government expense unless they are authorized in the statement of work or host-tenant support agreements.

10.25.1.4. Ensure contractor personnel are adequately trained in all local requirements to include, but are not limited to, all applicable safety, environmental, and AFOSH standards.

10.25.1.5. Establish a Quality Plan (QP). The QP is the wing's written guidance to include, as an example; duties and responsibilities, inspections to be accomplished (as identified by the QAR), FCF procedures, weight and balance, impoundment, and training. These are examples only and are not all-inclusive or required in all circumstances.

10.25.1.6. Develop procedures for support of continuing operations in the event of disruption, termination, or default of contract aircraft maintenance.

10.25.2. QAR Duties and Responsibilities:

10.25.2.1. Maintain an updated copy of the respective contract.

10.25.2.2. Maintain sufficient files to provide an audit trail of all contractual and QAR functions.

10.25.2.3. Familiarize themselves with applicable maintenance manuals, safety manuals, contract requirements, and other required regulations to effectively perform all assigned QAR duties. Program Management Review (PMR) provides contractual updates and should be attended by QARs.

10.25.2.4. Brief all affected personnel on contract requirements.

10.25.2.5. Document contractor deficiencies on AF Form 714, **Customer Complaint Record**, or equivalent, as designated in the quality plan. Deficiencies once documented need only leave

the base if satisfactory corrective action is not taken by the contractor and the QAR needs further assistance.

10.25.2.6. Coordinate on the Quality Plan and identifies specific inspections to be accomplished.

10.25.2.7. Appoint Quality Assurance Evaluators (QAE) as required.

10.26. Maintenance Functions Located in Operations. When maintenance functions are located in the Operations group (i.e. Survival Equipment, Transient Alert) QA provides technical support and conducts evaluations.

Chapter 11

IMPOUNDMENT PROCEDURES

11.1. Aircraft/Equipment Impoundment. Aircraft or equipment is impounded when intensified management is warranted due to system or component malfunction or failure of a serious or chronic nature. The MXG/CC appoints impoundment authorities and impoundment release authorities. The QA superintendent oversees the Group impoundment program. Impounding aircraft and equipment allows investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence. Groups will evaluate the need to establish an OI to address specific requirements in managing impoundment activities for assigned aircraft and equipment.

11.2. Impoundment Terms.

11.2.1. Authorized Personnel. Individuals directly involved in the management, safing, troubleshooting, or repair of an impounded aircraft or equipment.

11.2.2. Impoundment. Intensified aircraft and equipment management due to system or component malfunction or failure of a serious or chronic nature. Immediate aircraft or equipment isolation and controlled personnel access is required. Impoundment is the isolation or control of access to an aircraft or equipment item and applicable historical records after a serious incident so that an intensified investigation can be completed. Investigative efforts and repair actions are hampered or pertinent evidence destroyed by allowing unrestricted access to the aircraft or equipment involved.

11.2.3. Impoundment Official. The impoundment official will hold the minimum rank of MSgt and be appointed by the Impoundment Authority. Impoundment officials are designated as the single point of contact for the affected aircraft or equipment item and are responsible for controlling, monitoring, and investigating the impounded aircraft/equipment.

11.2.4. Impoundment Release Authority. Individual authorized to release aircraft or equipment from impoundment. The MXG/CC has the authority to release aircraft. Delegation of this authority will be limited (Level will be no lower than Maintenance Supervision). If the MXG/CC delegates impoundment release authority, individuals will be designated in writing and tracked on the SCR.

11.2.5. Impoundment Authority. Individual authorized to impound aircraft or equipment. MXG/CC will designate in writing and tracked on the SCR, those personnel that have the authority to impound aircraft/equipment. The Impoundment authority will appoint the impoundment official.

11.2.6. Isolation Area. An area designated by the Impoundment Authority to locate impounded aircraft/equipment. Aircraft may be isolated on the flightline or in hangars. The isolation area will be marked off using cones, ropes, or placards etc. indicating the impoundment condition.

11.3. Reasons for Impoundment of Aircraft or Equipment. Aircraft and equipment may be impounded for many reasons. The following list is not an inclusive list of situations requiring impoundment. Personnel should evaluate the problem and recommend impounding the aircraft or equipment to the Impoundment Authority. The decision to impound must be based upon the experience of the Impoundment Authority. Impound aircraft or equipment:

11.3.1. Following an aircraft ground or flight related mishap as defined in AFI 91-204, *Safety Investigations and Reports*.

11.3.2. Following an uncommanded flight control malfunction IAW AFI 91-204. Special attention is required to completely diagnose and correct flight control malfunctions. To ensure proper handling, units will consider as a minimum.

11.3.2.1. Team and individual integrity to provide continuity when troubleshooting major flight control malfunctions.

11.3.2.2. Skill-level, experience, and training requirements of team members and individuals assigned to work major flight control malfunctions.

11.3.3. When an inadvertent release or an explosive mishap is reported.

11.3.4. When the impoundment authority determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft/equipment or to address any degradation of aircraft airworthiness or serious anomaly.

11.3.5. When authorized procedures are not adequate or the unit is unable to identify or repair loaded nuclear weapons system malfunctions within the criteria of AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapons Systems*.

11.3.6. For engine anomalies to include but not limited to:

11.3.6.1. Unselected propeller reversal.

11.3.6.2. Flameout/stagnation (for single engine aircraft).

11.3.6.3. An aircraft experiences an unselected power reversal.

11.3.6.4. Engine case penetration, rupture, or burn-through from an internal engine component.

11.3.6.5. When an aircraft experiences a loss of thrust sufficient to prevent maintaining level flight at a safe altitude. This includes all cases of multiple engine power loss or roll back.

11.3.6.6. When an engine has confirmed internal damage that would normally require removal for repair due to foreign object damage and is isolated to the engine, the engine will be removed from the aircraft and impounded. Aircraft impoundment is not required.

11.3.7. When an in-flight fire occurs.

11.3.8. When an aircraft experiences an in-flight loss of all pitot-static system instruments or all gyro stabilized attitude or direction indicators.

11.3.9. When there is evidence of intentional damage, tampering, or sabotage.

11.3.10. When there are physiological incidents involving aircraft systems or cargo (crew members become ill during flight).

11.3.11. Impoundment authorities will determine if impoundment is warranted when:

11.3.11.1. A tool or other item has not been found after an extensive search has been conducted.

11.3.11.2. An aircraft landing gear fails to extend or retract.

11.4. Impoundment Authorities Responsibilities.

11.4.1. The Impoundment Authority appoints Impoundment Officials.

11.4.1.1. The Impoundment Official is designated as the single point of contact for impounded aircraft/equipment. They are responsible for controlling and monitoring the investigation of impounded aircraft/equipment. The Impoundment Official ensures only authorized personnel have access to the impounded aircraft/equipment. The Impoundment Official also insures that parts removed from impounded aircraft/equipment are carefully controlled to insure that parts, once confirmed as the cause for impoundment, are available to be processed as deficiency report exhibits.

11.4.2. Quality Assurance acts as the OPR for group impoundment procedures. QA will evaluate the need for development of an OI.

11.4.2.1. If the cause of the discrepancy could potentially affect other aircraft/equipment in the fleet, QA will consider crosstell value of the information for up channeling to the ANG weapon system manager and lead commands.

11.5. Impoundment Process and Procedures.

11.5.1. When the impoundment authority directs impoundment, a red X symbol will be placed in the applicable AFTO Form 781A or AFTO Form 244 with a statement indicating the reason for impoundment and the name of the assigned impoundment official.

11.5.2. The Maintenance Operations Center (MOC) will be notified when an impoundment decision has been made.

11.5.3. The impoundment official will use established checklists to guide sequence of actions.

11.5.4. Control access to impounded aircraft/equipment. Establish ECP if required.

11.5.4.1. If an ECP is established, the impoundment official will ensure an access control log (manual or electronic media product) is maintained at the ECP of the impounded aircraft/equipment or storage facility to track personnel entering and leaving the area for the duration of the impoundment.

11.5.4.1.1. The log will contain the following information as a minimum: individual's name, rank and employee number, date arrived/departed, and reason for entry.

11.5.4.1.2. The log will be reviewed daily and initialed by the Impoundment Official.

11.5.4.1.3. The log will be maintained on a daily basis until the impoundment/release authority releases the aircraft and will be disposed of only after the aircraft is successfully repaired.

11.5.5. Aircraft/equipment records will be controlled at the discretion of the Impoundment Official. When required, the impoundment official will:

11.5.5.1. Obtain and secure the current aircraft forms and the aircraft jacket file for aircraft or the AFTO Forms 244, Industrial/Support Equipment Record, for equipment.

11.5.5.2. Notify the MIS database manager (DBM) to isolate the aircraft/equipment serial number in order to prevent any changes and maintain the integrity of the historical data until the aircraft/equipment is released.

11.5.5.3. Request from the squadron owning the aircraft/equipment any personnel records required to complete the impoundment investigation. These records may include, but are not limited to, individual training records.

11.5.6. Maintenance will be limited on impounded aircraft/equipment until the cause is

determined. The Impoundment Official will determine what maintenance can be performed in conjunction with the maintenance required to release the aircraft/equipment from impoundment. Limit maintenance actions to those required to make the aircraft safe.

11.5.6.1. Parts removed from impounded aircraft/equipment will be carefully controlled. This is to insure that parts, once confirmed as the cause for impoundment, are available to be processed as deficiency report exhibits.

11.5.7. The Impoundment Official selects a team of highly qualified technicians dedicated to determine the cause of the problem that led to the impoundment.

11.5.8. The Impoundment Release Authority determines the need for a one-time flight IAW TO 00-20-1, and requests authorization from the MXG/CC or designated representative with authority over sortie generation.

11.5.9. When an aircraft is away from home station and encounters a problem warranting impoundment, the following procedures must be followed:

11.5.9.1. Established impoundment procedures will be followed. The MXG/CC may temporarily delegate impoundment and release authority to the deployed maintenance supervisor or superintendent.

11.5.9.1.1. Clear the impoundment discrepancy using “Red X” clearing procedures IAW TO 00-20-1.

11.5.10. Once the cause of the malfunction or failure has been positively determined, the Impoundment Official briefs the Release Authority on findings, corrective actions, and requests release of the aircraft or equipment from impoundment.

11.5.11. If approved, the Release Authority will clear or direct the impoundment be cleared in the forms by entering “Investigation Complete, All corrective actions have been reviewed, aircraft released” referring to original discrepancy in the “corrective action” block, signing the “inspected by” block and initialing over the red X symbol.

11.5.12. If the cause of a reported malfunction cannot be determined or a positive corrective action cannot be confirmed, the Release Authority will determine if further actions are required.

11.6. Rules of Impoundment Specifically for Explosive-Related Mishaps. When an inadvertent release or an explosive mishap is reported, the following procedures apply:

11.6.1. In-flight:

11.6.1.1. When the involved aircraft returns to the de-arm or parking area, the aircraft is impounded. Limit maintenance actions to those required to make the aircraft safe.

11.6.1.2. Inform the MXG/CC and the wing/base safety office of the impoundment action.

11.6.1.3. Park and isolate aircraft with unsafe or hung munitions in an area approved by weapons safety and airfield management.

11.6.1.4. Investigate and report the incident IAW AFI 91-204.

11.6.2. Ground:

11.6.2.1. The senior ground crew member is in charge of the aircraft/equipment until relieved and ensures involved persons remain at the scene.

11.6.2.2. Injured persons receive attention first.

11.6.2.3. Protect other aircraft or equipment located near the incident if an explosive hazard exists.

11.6.2.4. Do not change the position of any switches except as needed for safety. Limit maintenance actions to those actions required to make the aircraft/equipment safe.

11.6.2.5. The investigating Weapons Safety Officer/NCO begins recovery actions for objects/equipment dropped in flight and prevents removal of equipment released or fired on the ground. Keep items in place until the investigating ground safety officer/NCO releases them. Photograph items prior to removal.

11.6.2.6. When unit personnel cannot identify the cause of the failure/malfunction, request AFMC/contractor technical assistance IAW AFI 91-204. When assistance is requested, additional tear down of aircraft or equipment is prohibited until authorized by higher headquarters. If assistance is not provided in 3 days, higher headquarters may release the aircraft for further base investigation.

Chapter 12. NOT USED.

Chapter 13

TOOL AND EQUIPMENT MANAGEMENT

13.1. Tool and Equipment Management. The objectives of the tool and equipment management program are to prevent and eliminate foreign object damage (FOD) to aircraft, engines, missiles, training and support equipment, and to reduce costs through strict effective control and accountability of assets. To ensure standardization among maintenance units, the MXG/CC or equivalent functional authority for maintenance will have overall responsibility for the tool management program. Squadron maintenance supervision or equivalent is responsible for executing an effective tool program. The tool management program outlined in this instruction represents the ANG minimum program requirements. Depot teams/factory reps/CFTs/CLS will adhere to AF/ANG/Local guidance for tool control policies and procedures when working on aerospace equipment possessed by the unit.

13.2. Guidelines for Program Management.

13.2.1. The MXG/CC or equivalent functional authority for maintenance will develop an OI to implement the program. As a minimum, group OI will address the following:

13.2.1.1. Standardize procedures for security, control, and accountability (e.g. chits, manual, barcode, etc.) of tools and equipment.

13.2.1.2. Procedures for inventory. As a minimum, conduct and document an annual inventory of all tools and equipment.

13.2.1.3. Procedures for warranted tool management.

13.2.1.4. Procedures for strict control and management of replacement, expendable and consumable hand tools, HAZMATs, and other items contained in Composite Tool Kits (CTKs).

13.2.1.5. Procedures for transfer of tools/CTKs at the job site (on-site transfers). CTKs are not normally passed from one individual to another at the job site; however, mission needs occasionally require this action to occur. Ensure tool accountability and control is maintained when transfer occurs between the individuals. As a minimum the individuals involved in the transfer will accomplish a joint inventory and document accordingly.

13.2.1.6. Procedures for lost or missing tools.

13.2.1.7. Assignment of Equipment Identification Designators (EID) for equipment and CTKs and assignment of CTK numbers for tools.

13.2.1.8. Procedures for issue and control of personal equipment (e.g. ear protectors, reflective belts, headsets, etc.).

13.2.1.9. Procedures to ensure positive control of rags.

13.2.1.10. Procedures to limit numbers of personnel authorized to procure tools.

13.2.1.11. Procedures for control of locally manufactured or developed tools and equipment.

13.2.1.12. Procedures for depot teams, factory representatives, and contract field teams (CFT) when working on equipment within the unit.

13.2.1.13. Procedures and responsibilities for situations where two or more workcenters operate

a single tool room/support section, or when workcenters elect to distribute CTKs or peculiar support/test equipment to decentralized locations.

13.2.1.13.1. Procedures for control of crash recovery and hydrazine response equipment permanently stored/located in trailers or vehicles.

13.2.1.13.2. Procedures for occasions when a single person must sign in and sign out a tool kit.

13.2.1.14. Establish procedures for replacing broken tools.

13.2.1.15. The OG/CC will establish procedures, or use MXG OIs, for control of aircrew tools and life support section tool kits dispatched to the flightline.

13.3. General Program Guidelines.

13.3.1. Design CTKs to provide a quick inventory and accountability of tools. Develop a simple inventory method, a “show” (e.g. a shadow of the tool) and “know” (knowledge of tool or kit location) concept. Clearly mark all CTKs and tools with the owning workcenter. Develop local procedures to determine which tools are checked out and who has them. Inspect all tools and equipment periodically for serviceability according to TO 32-1-101, *Maintenance & Care of Hand Tools*.

13.3.2. Maintenance supervision will designate and document CTK Custodians to manage and control CTKs. CTK custodians are responsible for tool, HAZMAT, and equipment accountability and control within their respective areas.

13.3.3. Flight and Element supervisors determine the type, size, and number of CTKs required for their workcenters and approve and sign the master inventory list (MIL). For weapons bad crew CTKs, the wing weapons manager (WWM) will approve and sign the MIL.

13.3.4. A MIL is developed for each type of CTK or equipment kit. A copy of the master listing will be kept in the tool and equipment storage facility at all times for inventory purposes. The CTK custodian has the authority to interchange “like” items.

13.3.4.1. Contents are identified by drawer/section indicating the total number and type of items in each drawer/section of the CTK.

13.3.4.2. A MIL is required for each tool kit or series of identical kits and filed by the CTK custodian in the MIL file (may be automated). The MIL remains valid until contents change (MILs do not require replacement solely to update signature.).

13.3.4.3. If chits/dog tags/identification tags or similar tags or dust caps are attached to tools/equipment, they will be secured in a manner that will preclude any possibility of FOD, and they will be listed on the MIL.

13.3.4.4. Document removed/broken CTK items.

13.3.4.5. Arrange CTK contents for ease of inventory. CTK contents will be standardized to the maximum extent possible within functional elements of a squadron that have similar missions, for example, aircraft flights/elements and CASTs.

13.3.4.6. Each tool, item of equipment, or consumable contained in a CTK has an assigned location identified either by inlay cuts in the shape of the item, shadowed layout, label, or silhouette. No more than one item is stored in a cutout, shadow, or silhouette except for tools issued in sets such as drill bits, allen wrenches, apexes, or paired items (e.g. gloves, booties).

13.3.4.7. Consumables may be placed in CTKs using the following guidelines:

13.3.4.7.1. Consumables must be identified on the MIL and approved by the Flight/Element supervisors. Examples of consumables include, safety wire, adhesive, wire bundle lacing, solder, etc.

13.3.4.7.2. Small quantities of high use common hardware items such as bolts, nuts, screws, etc. may be authorized on a very limited basis if approved by the Flight/Element supervisor and the Quality Assurance Superintendent after thorough and deliberate evaluation of the need. These hardware items must be maintained in secure specialized containers with authorized quantities identified on the container and MIL. Consumed quantities will be replenished upon CTK check in to ensure positive control and accountability is maintained

13.3.4.8. Equipment and accessories that do not present a FOD potential and are not dispatched from a workcenter, support section, or tool room, need not be included in a CTK; however, this equipment must have designated storage locations established.

13.3.4.9. Establish designated locations for test equipment and common accessories (e.g. waveguides, attenuators, fittings, cables, adapters, etc.) that are not part of a CTK. Designated locations may be work areas or stations. (e.g. TMDE, avionics elements, propulsion element, etc.).

13.3.4.10. Industrial shop machinery accessories/attachments (e.g. blades, arbors, chucks, gears, etc.) need not be controlled as tools, however, these items will be maintained in designated storage locations for accountability. As a minimum, storage cabinets/drawers will be labeled to identify the contents.

13.3.4.11. Tools/expendable items used for titanium engine blade blending will be kept in a special purpose kit separate from other tools. In addition to normal CTK identification these kits will be marked "Controlled Items" "For Titanium Engine Blade Blending Only".

13.3.4.12. Remove pocket clips from tools when possible (flashlights, continuity testers, small screwdrivers, etc.) prior to placement in tool kits.

13.3.4.13. Personal tools not controlled through CTK procedures are NOT authorized on the flightline, or in any maintenance area. (e.g. mini-mag flashlights, leathermans, buck knives, etc.). Mark and control tools or equipment that a workcenter assigns to an individual IAW this instruction.

13.3.4.14. Flashlights, lanterns, portable lighting devices and light sources will conform to the requirements of Article 513 of National Fire Protection Association (National Electric Code), TO 1-1-3, and AFMAN 91-201. **NOTE:** Aircraft and equipment technical orders may dictate additional restrictions.

13.4. Marking and Tool Identification.

13.4.1. Tools will be marked and identified as followed:

13.4.1.1. To identify items tracked in Tool Accountability System (TAS), units will use a standard nine-digit worldwide (WW) identification (ID) code as the EID. Units will etch, stamp, or mark assigned tools, equipment, and CTKs. The first two letters of the WW ID will be the first two letters of their wing's personnel assignment system (PAS) code. The third and fourth characters are designated as the unit or the first two digits of their office symbol. To ensure tool

rooms have unique identifiers, wings (or equivalent) will ensure the first 4 letters of the EID numbers/bar code specifications are not duplicated by units with the same PAS code. The unit establishes the remaining five characters and sets them aside for tool and equipment identification.

13.4.1.2. To identify items not tracked in TAS: Tools, equipment, and CTKs will be etched, stamped, or marked with EID numbers to aid in inventory. Multiple cabinets may be identified as one CTK. The tools or equipment contained in a CTK will be assigned the EID number of the parent CTK. Small tools or items belonging to a CTK, which cannot be marked (drill bits, allen wrenches, apexes, containers, lids, etc.) are maintained in a container marked with the assigned EID number and the quantity of tools contained therein.

13.4.2. Mark hand grease guns, dispensing cans, spray bottles, pump oilers, and similar containers with the type of grease, fluid, or other liquids and military specification (MILSPEC) of the contents. If no MILSPEC exists, the manufacturer's name, part number/NSN will be used. Keep hoses and fittings separate for each type of grease. **NOTE:** If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements of AFOSH STD 161-21, Hazard Communication, and local directives are accomplished.

13.4.3. Fiberglass handled hammers are etched on the metal head only (not on handle) in a non-impact area.

13.4.4. Items that are assembled and are not intended to be disassembled during use require only one mark/etch/stamp and one entry in the MIL (e.g. scribes, flashlights, grease guns, etc.).

13.5. Tool Accountability, Control, and Inventory.

13.5.1. Accountability means knowing where tools are and who has responsibility for them. Flight and element supervisors, through CTK custodians, are responsible for tool and equipment accountability and control. When a person signs for a tool or piece of equipment, they are accountable for it until it is returned to the tool room and accountability transfers back to the CTK custodian (through a representative or tool room employee). If automated, units will use Tool Accountability System (TAS). If not automated and during AEFs, deployments, etc and the unit's tools are not commingled with the active forces, units may use a chit system, AF Form 1297, a MAJCOM, or locally approved form will be used for accountability and control of CTKs, equipment, and tools. ?

13.5.1.1. Units will use TAS to:

13.5.1.1.1. Track, issue, and receipt for all assigned tools, equipment, tool kits.

13.5.1.1.2. HAZMAT items, T.O.s.

13.5.1.1.3. Track authorizations/restrictions for special tools/equipment (by individual).

13.5.1.1.4. Track inspections required by this instruction.

13.5.1.1.5. Track spare, lost, and damaged (removed) tools.

13.5.1.1.6. Track PMEL requirements.

13.5.1.1.7. Develop and manage tool/equipment inventories.

13.5.1.1.8. Develop and manage deployment kits (import/export).

13.5.1.2. If an automated system is not available (such as at a deployed location), units may use a

chit system, AF Form 1297 or, a MAJCOM or locally approved Form for accountability and control of CTKs, equipment, and tools. When using a chit system, chits are controlled as tools to include a beginning and end of shift inventory. Do not issue chits directly to individuals or remove them from tool rooms. Chit control boards are located in secure locations.

13.5.2. Account for all CTKs, tools, and equipment at the beginning and end of each shift. CTKs present during tool room shift inventories do not need to be opened for inventory.

13.5.2.1. Perform a visual inventory of all CTKs when issued for use, at the completion of job or tasks, and when returned to the tool storage facility. Accomplish a CTK inventory prior to operation of any aircraft or equipment when maintenance actions were performed (engine run, landing gear retraction, flight control operational checks, etc.).

13.5.2.2. At least annually or when the CTK custodian changes, conduct a comprehensive inventory of all tools, equipment, and CTKs. The purpose of this inventory is to perform an extensive inspection of all tools and equipment, to include condition, identification markings, and accuracy of the MIL. Inspect all tools for serviceability according to TO 32-1-101. CTK custodians document these inventories and maintain the most current inventory documentation on file.

13.6. Locally Manufactured or Developed Tools and Equipment: QA coordinates on all requests for approval and use of locally designed tools or equipment that carry loads, change torque, or present potential to damage government resources. MXG/CC or their designated representative will have approval authority. **NOTE:** This procedure does not apply to local manufacture, modification or design of tools authorized in specific technical data. Users will review items and requirements biennially (every two years) for applicability and current configuration.

13.7. Tool Room Operations and Security. Limit tool issue sections to no more than one per workcenter. Set up tool rooms to ensure positive accountability and to ensure custodial control. Process tools that are lost, damaged, or destroyed, due to neglect according to AFMAN 23-220, *Reports of Survey For Air Force Property*.

13.7.1. The tool room must be capable of being locked and afford protective measures such as monitoring, 24-hour coverage, or controlled key access. The element/workcenter supervisor authorizes access to tool rooms. When all CTKs are not capable of being secured in the tool room, the element/workcenter supervisor will design a process to prevent the unauthorized use or access to tools and equipment. Due to space and facility limitations, it may not be possible to store oversized tool kits in the tool room.

13.7.1.1. Tool kit locks will be used to provide a physical barrier to opening the container lid or door and prevent the unauthorized removal of tools. Locks are not required on tools and equipment that are stored within secured tool rooms or workcenters.

13.7.1.2. Dispatchable tools, equipment, and CTKs are locked and/or secured when left unattended. Tools and equipment are never secured to the exterior of an aircraft. Unattended tool kits located within the controlled area are required to be locked but do not need to be secured to another object.

13.7.1.3. Modifications to tool containers are authorized unless modification voids the manufacturer's warranty.

13.7.1.4. Tool rooms will not issue tools individually from dispatchable CTKs. When a recurring need exists for common tools to be issued individually, e.g., hammers, screwdrivers, pliers, drills, wrenches, etc., to perform routine, housekeeping or facility tasks within the workcenter, add the tools to a MIL.

13.8. Lost Item/Tool Procedures.

13.8.1. Supervisors ensure all assigned personnel are familiar with lost tool procedures. If an item/tool or a portion of a broken tool is discovered missing, the following procedures apply:

13.8.1.1. The person identifying the missing item/tool will search the immediate work area for the item/tool. If not found, after completing an initial search the individual will notify the expediter/production supervisor or equivalent.

13.8.1.2. Place a red X in the aircraft or equipment forms of all affected aircraft with a description of the tool and a specific, last known, location of the tool.

13.8.1.3. Expediter/production supervisor or equivalent will immediately notify the flight commander or superintendent, support section, MOC, and QA.

13.8.1.4. Initiate a thorough search for the tool.

13.8.1.5. After a thorough search is completed and the tool is not found, the person issued the item/tool will initiate a lost tool report.

13.8.1.6. If at any time during the investigation the item/tool is found and retrieved, notify the superintendent or chief, support section, MOC, QA, expediter, production supervisor or equivalent, and the owning workcenter.

13.8.1.7. If not found, the MOC will notify the MXG/CC of the missing item/tool.

13.8.1.8. If the item is not located, Maintenance Supervision will determine when the search may be discontinued.

13.8.1.8.1. Limit authorization to clear red-X's when a tool cannot be located to no lower than Maintenance Supervision.

13.8.1.9. When it is suspected that the item/tool has fallen into an inaccessible or unobservable aircraft area, perform a non-destructive inspection (NDI) or use borescope equipment to locate the lost tool.

13.8.1.9.1. If the item/tool is in an inaccessible area that poses no FOD threat and the action is to leave the item/tool in place, the x-ray (or equivalent) with the identification of the exact tool location and copies of all information concerning the lost tool are maintained in the aircraft historical file until the item/tool is recovered.

13.8.1.10. If at any time during the investigation the item/tool is found but is inaccessible, notify the superintendent, support section, MOC, QA, expediter, production supervisor or equivalent, and the owning workcenter.

13.8.1.10.1. Maintenance Supervision may explore other possible actions to include having the unit or a depot field team disassemble the aircraft to remove the item/tool.

13.8.1.10.2. If the aircraft MDS is one that has a PDM or is scheduled for depot modification, the lost item/tool and location is listed in the AFTO Form 345, **Aerospace Vehicle Transfer Inspection Checklist and Certification**, for removal by the depot.

Chapter 14

MOBILITY AIRCRAFT DEFENSIVE SYSTEMS LOADING POLICY

14.1. Applicability. A 7/9-level individual with a maintenance AFSC will be appointed by the MXG/CC to perform Weapons Task Qualification Training Manager (WTQM) duties as described in this chapter for the purposes of establishing and maintaining a chaff/flare loading and unloading functions. That person will appoint personnel as needed to act as the Weapons Task Qualification Crew (WTQC). The WTQM and the WTQC will: 1) ensure chaff/flare loading operations are conducted safely; 2) provide initial and recurring load training; and 3) serve as the focal point for all chaff/flare loading issues, 4) observe only and will not be a part of the load operations during training. The intent is to establish and maintain a viable, safe loading/unloading capability and to train proficient crews. A minimum of two qualified personnel are authorized to perform load and unload tasks. When personnel are in chemical warfare equipment, a third person (need not be task qualified) will be present as a safety observer.

14.2. Training. All training, proficiency and documentation requirements described in this chapter must be met to include a local OI for launch and recovery of explosives loaded aircraft according to paragraph 14.2.1.8.

14.2.1. The WTQM develops and oversees the chaff/flare loading standardization program, sets standards, develops local policies and procedures, and interprets tech data/other directives, which govern the chaff/flare loading standardization program. The WTQM is typically a 2A1X7 (EW Craftsman), however, other flightline 2AXXX or 2WXXX personnel may perform this function. Individuals selected as the WTQM will be documented on the SCR. The WTQM will:

14.2.1.1. Receives initial and annual recurring load Qualification training, documented on AF Form 2419, from qualified personnel from the 139 AW/AATTC, St. Joseph, MO for C-130's only, and maintains currency on chaff/flare loading task. For C-5's and C-141's coordinate training with AMC. Once trained, the WTQM develops and administers the unit's chaff/flare load training program.

14.2.1.2. Select, train, evaluate, and qualify a minimum of two personnel as the WTQC on safe and reliable munitions loading procedures. Evaluates and requalifies WTQC annually. Designate WTQC members on the SCR. **NOTE**, In the event that a unit is initially tasked and has no qualified instructors, it will be necessary for the WTQM to travel to a unit with qualified trainers. Once the WTQM is trained and qualified they can train and qualify the home station WTQC personnel.

14.2.1.3. Designates, in coordination with MXG/CC, sufficient personnel to be chaff/flare loading qualified to support the unit's mission. Maintains a qualification status system to depict trained personnel and their qualification status. As a minimum, it identifies the number of qualified personnel, names and employee numbers, MDS qualification, Defensive Systems (DS) equipment type, qualification date, and date(s) when recurring training is due. **NOTE:** Automated systems such as G081 or CAMS may be used.

14.2.1.4. Establishes time standards for initial and recurring loading tasks. The senior evaluator has the discretion to add to the standard if inclement weather or equipment failure is the cause of exceeding the time standard. AMC lead wings develop time standards for each MDS for qualification purposes.

14.2.1.5. Review and approve or disapprove AFTO Forms 22 that pertain to chaff/flare loading tech data.

14.2.1.6. Develops a Task Assignment List (TAL) which may be used during training for all chaff /flare loading operations. AMC lead wings develop MDS-specific TALs. TAL is derived from applicable MDS munitions load checklist (33-1-2 series TO). TAL identifies the load crewmember responsibilities by step.

14.2.1.7. Work with Wing Safety or the local explosives safety officer and airfield management to develop an OI for handling chaff/flare-loaded aircraft IAW AFMAN 91-201, and AFI 91-202, *The USAF Mishap Prevention Program*. As a minimum, this OI will cover launch/recovery procedures for chaff/flare-loaded aircraft; chaff/flare storage and transportation; and partially ejected flare procedures. Annotate chaff/flare loaded on AMC aircraft in G081 using program 9018.

14.2.1.8. Ensure standardization of chaff/flare loading CTKs to the maximum extent possible. Chaff/flare loading CTKs must include all tools and equipment necessary to support applicable MDSs and alternate mission equipment configurations.

14.2.1.9. Coordinate the scheduling of personnel for chaff/flare load training. The WTQM may delegate this duty to the WTQC.

14.2.1.10. Coordinate with PS&D, or the Regional Training Center (RTC) if applicable, to obtain chaff/flare dispensing system-equipped aircraft for training purposes.

14.2.1.11. Ensure training magazines match the characteristics and feel of live magazines (e.g. weight, dimensions, etc.)

14.2.1.12. Weapons Task Qualification Crew (WTQC). The WTQC assists the WTQM in managing the chaff/flare loading standardization program. The WTQC's primary purpose is to train and qualify personnel to load chaff/flares, but it may also perform chaff/flare load duties. The lead WTQC member is typically a 7-level 2A1X7. All training will be conducted using training munitions. The number of WTQC members trained should be based on workload, with consideration given to their ability to maintain proficiency on all applicable MDSs. WTQC members are qualified by their WTQM. The WTQC members will:

14.2.1.12.1. Provide personnel with initial and recurring load qualification training.

14.2.1.12.2. Monitor personnel qualifications to ensure required academic and practical training is completed. Take disqualification action if recurring requirements are not met.

14.2.1.12.3. Spot-check personnel to evaluate their proficiency. Disqualify personnel who violate safety, tech data, or reliability procedures, or fail to demonstrate proficiency.

14.2.1.12.4. Develop and coordinate training schedules and provide them to PS&D for inclusion in the appropriate schedule (monthly, weekly, etc.).

14.2.1.13. Provide personnel with initial and recurring load qualification training.

14.3. Qualifying Chaff/Flare Load Personnel. Load qualification training consists of academic and practical training. Personnel are considered qualified upon successful completion of training provided by a qualified WTQC. Document initial load qualification training in the qualification status system and member's CFETP. Document recurring load qualification training in the qualification status system. Initial qualification will be conducted using training

munitions; live munitions may be used during annual requalification to maintain currency.

14.3.1. Current qualification of chaff/flare load personnel is valid worldwide.

14.3.2. Disqualifying Chaff/Flare Load Personnel. Although not all-inclusive, the following criteria constitute grounds for disqualifying personnel from chaff/flare loading duties: 1) failing to complete recurring training; 2) committing a safety or reliability error; or 3) lack of proficiency. Document disqualification in the member's CFETP and the qualification status system.

14.3.3. Academic and Practical Training must be provided during initial and recurring load qualification training. Academic training is required before practical training is accomplished. Recurring academic training is administered annually. As a minimum, academic training will include chaff/flare loading publications familiarization, aircraft familiarization, munitions familiarization, safety, security, support equipment familiarization, test equipment, special tools, handling equipment, local requirements, AFI 36-2201, T.O. 11A-1-33, *Handling and Maintenance on Explosives Loaded Aircraft, and emergency procedures*. Training course control documents are coordinated annually through the wing weapons safety office and the Maintenance Training. Practical training must be completed within 14 days of satisfactorily completing academic training. Practical training should duplicate operational conditions as closely as possible. Recurring practical task qualification is administered at least annually. As a minimum, practical training will include chaff/flare module serviceability criteria, actual chaff/flare loading, and operation of support equipment/AGE used during loading operations. **NOTE:** Weapons task qualification academic training may fulfill the requirements for explosive safety training if the requirements of AFI 91-202 are included. TALs and the loading technical order (33-1-2) must be available at the load-training site.

14.3.4. A load crew member qualified on a specific task on a specific mission design series (MDS) aircraft is considered qualified to perform that task on all series of that MDS; however, the member must be familiarized with differences within the MDS (e.g. cockpit switch locations). The WTQM or WTQC provide practical, on-aircraft training on these differences, then document these qualifications for each dispensing system in the qualification status system.

14.4. Transient Aircraft. Apply the following rules when working transient aircraft:

14.4.1. If tech data is not available, then under no circumstances will personnel attempt chaff/flare load operations.

14.4.2. If tech data is available, then qualified personnel may perform chaff/flare load operations.

14.4.3. If tech data is available, but no one is qualified on the transient aircraft, then the appropriate MXG/CC may authorize the WTQC or WTQM to dearm and/or unload the aircraft.

NOTE: This is a temporary, one-time, authorization to facilitate required maintenance when qualified personnel are not available. The WTQM submits a written request to the MXG/CC identifying personnel selected to perform the task, aircraft type, and (if applicable) number of aircraft to be dearmed and unloaded. Maintain approved requests for 90 days from date to provide a paper trail.

14.5. Identification of Chaff/Flare-Loaded Aircraft. If an aircraft is chaff/flare-loaded, safe it IAW applicable tech data prior to performing any maintenance. Verify chaff/flare load status of aircraft by checking AFTO Forms 781A/C/H before performing any maintenance. ANG does

not require aircraft armament placards, but many restrictions apply when performing maintenance on chaff/flare-loaded aircraft.

14.5.1. Annotate the aircraft 781 series forms IAW TO 00-20-1, this instruction, and applicable AMC directives. Before loading chaff/flares, review the AFTO Form 781C, for DS inspection status. **NOTE:** Do not load chaff/flares if the aircraft is overdue a scheduled DS inspection.

14.5.2. Documents DS software version data and aircraft inspections (e.g. 90-, 120-, or 180-day checks) on AFTO Form 781C. For software version data, enter the following information in the "Remarks" section for each reprogrammable system: type system; installed Operational Flight Program (OFP) version; and/or Mission Data File (MDF) version (e.g. ALE-47, OFP XXXX, MDF XXXX). If a system contains multiple OFPs, list all applicable versions (e.g. ALE-47, Programmer OFP XXXX, Sequencer OFP XXXX, MDF XXXX).

14.6. Documentation Requirements. Annotate AF Form 2434, **Munitions Configuration and Expenditure Document**, on all aircraft configured and loaded to release or fire chaff/flares. Record the number and type of chaff/flares in the appropriate munitions column. A locally developed form may be used, as long as it includes all AF Form 2434 data elements.

14.6.1. Guidance pertaining to reconciliation of AF Form 2434 (or equivalent) and reconciliation responsibility:

14.6.1.1. Reconcile and verify expenditures during aircraft debrief.

14.6.1.2. Flightline expediter will ensure visual reconciliation is completed.

14.6.1.3. Home station reconciliation data is provided to the unit MASO.

14.6.1.4. For enroute aircraft loaded at home station, 2434 (or equivalent) reconciliation data will be forwarded through the AMOG munitions POC to the applicable home station MASO.

14.6.1.5. For aircraft loaded at enroute units, 2434 (or equivalent) reconciliation data is forwarded through the AMOG munitions POC to the applicable host unit.

14.7. Chaff/Flare Buildup. Chaff/Flare Buildup. Operations involving the build-up of chaff/flare magazines will have a minimum crew size of two qualified munitions personnel. Units performing chaff/flare buildup will do so only in approved facilities/locations. Units must have an approved explosive site plan on file with the ANG Weapons Safety prior to initiating chaff/flare buildup or storage operations.

14.8. Training Facilities. An academic classroom with appropriate heating and cooling is required for weapons academics training.

Chapter 15

MAINTENANCE PLANS, SCHEDULING AND DOCUMENTATION (PS&D)

15.1. General. PS&D is a consolidated function responsible for coordinating aircraft maintenance requirements and utilization scheduling between maintenance, operations, and external agencies. The documentation section is an integral part of all PS&D functions, and maintains historical maintenance data within maintenance information systems (MIS). The accuracy of entries on maintenance documents is a basic responsibility of the initiator and supervisors. PS&D ensures wing maintenance plans are developed using aircraft historical data from MISs input by all maintenance personnel. This function will be performed in Maintenance Operations Flight (MOF). The accuracy of entries in automated maintenance systems affects the development of that plan and is a basic responsibility of all unit personnel. Specifically, the PS&D will:

15.1.1. Build, coordinate, publish, and distribute an integrated aircraft schedule to support required maintenance and flying operations. (electronic means i.e. web pages, e-mail may be used in-place of paper products provided unit security is not compromised).

15.1.2. In conjunction with the Analysis function, ensures that the MXG/CC is advised of maintenance capability, problem areas, and adherence or deviation to schedules.

15.1.3. Perform the aerospace vehicle distribution officer (AVDO) function according to AFI 21-103, Equipment Inventory, Status, and Utilization Reporting.

15.1.4. Develop on OI for the accounting of aircraft flying hours in the appropriate MIS according to AFI 21-103.

15.1.4.1. This OI will also provide guidance for daily reconciliations and will ensure MISs are reconciled with operations NLT the 4th calendar day of the month.

15.1.5. Keep a current serial number listing of projected inputs and outputs of aircraft and equipment into depot repair programs in support of HQ AFMC and specific ANG plans and requirements. This listing also contains ANG directed modification or maintenance programs. As a minimum Depot/PDM schedules are published in the monthly maintenance plan.

15.1.6. Manage the aircraft transfer/depot program. PS&D will coordinate any changes to the transfer/depot/Depot field team (DFT)/Contract Field Team (CFT) programs with any affected agencies. PS&D forwards copies of all schedules and any changes to the ANG-AVDO.

15.1.7. Coordinate with QA and any affected agencies on all AFTO Form 103, **Aircraft/Missile Condition Data Requests**, and submits them IAW TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*.

15.1.8. Attend the daily scheduling meeting, which finalizes the daily portion of the weekly schedule. The purpose of the meeting is to verify aircraft and equipment utilization, scheduled maintenance requirements schedules for the current and next day, establish work priorities, and coordinate scheduling changes. Ensures the following programs are briefed weekly: Time Change Items (TCI), Time Compliance Technical Orders (TCTO), Special Inspections (SI), shared resources usage/concerns, and depot/contract field teams (CFT). Any uncompleted

scheduled maintenance that was scheduled for the previous day will be briefed daily. All TCTOs that ground within 30 days will be briefed to the MXG/CC, weekly until complied with.

15.1.9. Monitor aircraft utilization and maintenance resources to ensure wing programs and commitments are met and that shared resources and schedules are deconflicted.

15.1.9.1. Review the weekly and monthly training schedules prior to publication to minimize impact on production and facilities.

15.1.10. In Conjunction with QA, manage and has functional responsibility for the wing's special inspection, time change, Time Compliance Technical Order (TCTO), and configuration management programs.

15.1.11. Comply with aircraft document review procedures outlined in Chapter 7, para. 7.2.

15.1.12. Ensure aircraft and equipment are scheduled to meet all training needs.

15.1.13. Provide functional expertise on all maintenance scheduling issues and equipment historical document (AFTO Form 95s) management to QA during inspection/evaluations.

15.1.14. Serves as the functional advisor to other scheduling activities. Oversees the overall maintenance scheduling effort for the wing.

15.1.14.1 Visits all decentralized scheduling activities quarterly (semiannually for contract and civil service organizations), provides technical assistance where needed

15.1.15. In conjunction with the Maintenance Training develop and periodically review training programs for all 2R1X1 personnel.

15.1.15.1 PS&D will performs initial evaluations for all incoming 2R1X1 personnel and coordinates with the gaining squadron to provide assessment of the individuals training needs.?

15.1.15.1.1 For individuals with training records, the initial interviews will be documented on an AF Form 623a and filed in the training record.

15.1.15.2 As a minimum the training plan will include familiarization with assigned weapons systems, core task training/certification procedures and continued proficiency in scheduling and documentation techniques.

15.1.15.2.1 Weapon system familiarization training is required (if personnel are not familiar with weapons systems) and will be provided by the Maintenance Training within three months of assignment, if courses are available. Otherwise coordinate with appropriate operational squadron for familiarization training. Familiarization training will be documented in the individuals training records.

15.1.15.3 Civil Service and contractor maintenance organizations must comply with their training plans as established per their performance work statement (PWS) or statement of work (SOW).

15.1.16. Comply with pre-dock and post-dock inspection meetings. As a minimum:

15.1.16.1. Reviews the planned aircraft inspection schedule and initiates the AF Form 2410, *Inspection/TCTO Planning Checklist*, prior to the pre-inspection meeting. When scheduling inspections such as periodic, isochronal, and hourly post flight (50-hour cycle or greater), PS&D prepares the AF Form 2410 in duplicate. The original is used as the "basic inspection" data for planning.

15.1.16.2. Review all known TCTO, TCI, calendar or SI requirements against the aircraft or equipment. List on the AF Form 2410 all TCTOs, TCIs, SIs, and each major action that should be accomplished during the inspection. Identify requirements for kits or parts when availability has not been confirmed.

15.1.16.3. Prior to the pre-inspection meeting, PS&D incorporates all requirements against the aircraft into a work package. Deferred discrepancies to be fixed during the inspection will keep the original JCN. PS&D uses the AF Form 2410 as an aid in planning for and conducting the pre-inspection meeting. Use Block 14 to list the agencies attending the meeting and any discussion items to be presented. Block 15 reflects specialist tasks in addition to normal inspection needs.

15.1.16.4. PS&D informs the representatives of the inspection schedule and scope, including TCTOs, TCIs, SIs, deferred discrepancies (DD), and special instructions to be accomplished. The representatives, in turn, inform PS&D of limiting factors that might affect the schedule. Use AF Form 2410 to record additional information on the inspection discussed during the pre-inspection meeting. Maintain the original AF Form 2410 as a suspense item and file in the jacket file for use as a guide when conducting the post-dock meeting. Give a copy to the dock chief.

15.1.16.5. Configuration is discussed during all aircraft pre-dock meetings. A list of items identified as out of configuration will be provided to the dock chief in the pre-dock package and will be verified during the major inspection. The verified data will be corrected in CAMS by the responsible workcenter prior to the post-dock.

15.1.16.6. Conduct a post-dock review. The dock chief discusses open discrepancies with PS&D, the crew chief, other attendees, and reviews any significant factors affecting the inspection. These procedures are also used to identify any problems that may adversely affect future scheduling. The dock chief gives the completed inspection work package to PS&D for filing until it is replaced by the next inspection work package. PS&D files a computer-printed listing of completed on-line work orders.

15.1.17. Complies with -21 equipment accountability requirements as outlined in AFI 21-103. The MXG/CC may determine which workcenters will perform this function.

15.1.18. Maintains historical aircraft and equipment documents, unless the MXG/CC elects to decentralize equipment documents to their responsible workcenter. Conducts and documents an annual spot check of decentralized documents that are not maintained in MIS. Spot checks and documents semiannually the non-installed engine historical documents if engine management duties are assigned.

15.1.19. Maintain (load, change, and delete) the job standard master listing (JML) for inspections and time changes listed in the applicable aircraft -6, and commodity TOs. **NOTE:** The MOF engine management (EM) section maintains the JML for engine inspections and time changes. Maintain JMLs for off-equipment items in the owning workcenter.

15.1.20. Has overall responsibility for and maintains (load, change, delete) inspections and time changes for each aircraft, as directed in the applicable -6 manual. For G081 units, this is a shared responsibility with the weapons systems manager.

15.1.20.1. Provide training for loading profile JSTs to support automated forms (CAMS units only).

15.1.21. Ensure standardization of core scheduling practices to include (but not limited to): manual updates for MIS products; aircraft documents reviews, automated and manual AFTO Form 95 documentation, aircraft jacket files, missing forms policy requirements, maintenance of MIS products to manage time changes, special inspections and TCTOs, etc.

15.1.22. Manage the job standard master list (JML) in the MIS. (**NOTE:** for G081 units, the JML is AFTO 781D). Perform a semiannual review of all time change and special inspection JSTs and reconciles them with the appropriate aircraft dash 6, 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items*, and commodity series TOs listed in TO 00-20-1. Document the semiannual review on AF Form 2411, or electronic equivalent.

15.1.23. Establish a standardized format for monthly plans and weekly utilization and maintenance schedules.

15.1.24. Publish a MXG OI prescribing procedures for assigning job control numbers in the event the MIS becomes inoperative.

15.1.25. Assists workcenters in assigning ID numbers and automated tracking of inspection criteria.

15.1.26. Ensures that work packages are loaded in the MIS for periodic and phase engine changes, and other recurring event-type inspection requirements.

15.2. Not Used

15.3. Not Used

15.4. Aircraft Generation Planning. AF Form 2408, **Generation Maintenance Plan**, and AF Form 2409, **Generation Sequence Action Schedule (GSAS)**, will be used to manage aircraft generation sequence actions for various unit taskings, locally generated products may be used if all information is included. The AF Form 2408 reflects the hour sequence of all actions necessary to launch aircraft. The legend block of this form contains a locally established legend, which indicates the type aircraft and its tasked mission. If the tail number is linked to a mission number, this form is classified when filled in. The AF Form 2409 shows the actions necessary to generate a specific line number. The report codes used on this form are locally established codes for maintenance shown in the action column blocks. Use these report codes to report maintenance actions during generation. (**NOTE:** The AF Form 2408 and AF Form 2409 are not required for AETC gained units that do not have a mobility tasking requirement.) PS&D will:

15.4.1. In conjunction with, AMXS, WWM, and MXS personnel, develop, coordinate and prepare all aircraft maintenance flow plans.

15.4.2. Prepare the GSAS in sufficient detail to satisfy all generation actions. A completed GSAS requires only the aircraft serial number assignment and the 24-hour clock time annotation. Each plan must not exceed the unit's resources, i.e. load crews, equipment, convoys per hour, supervision, etc. To prevent classification, do not include items such as wartime bed down locations, OPLAN title, A-hour (SIOP) timing, or no-later-than timing from OPLANs.

15.4.3. Forward the completed GSAS form to affected activities at the beginning of the generation sequence.

15.4.4. Ensure automated GSAS plans are kept current and reviewed semi-annually, and

sufficient quantities are available in the event of a communication out scenario.

15.4.5. Attend post exercise/contingency “hot wash” meetings to evaluate flow plans to determine if changes or improvements are required.

15.5. Operational Planning Cycle. The objective of the operational planning cycle is to execute the wing flying hour program consistent with operational requirements and maintenance capabilities. This process requires operations and maintenance cooperation. The operational planning cycle begins with the annual allocation of flying hours and utilization (UTE) rates. Maintenance schedulers must understand operational needs to determine supportability and operation schedulers must consider maintenance capabilities. Maintenance and operations schedulers will develop a proposed annual flying plan, which considers operational requirements and maintenance capabilities. This annual plan, broken out by month, will evaluate the capability of maintenance to support the annual flying hour program. This plan will be coordinated and consolidated by PS&D and forwarded to the current operations flight commander (or equivalent). The printed plan will include an assessment of the wings ability to execute the flying hour program. The plan will then be presented to the MXG/CC and OG/CC for approval before being approved by the WG/CC. Commit the fewest number of aircraft possible to meet programmed UTE rate standards and goals.

15.6. Not Used.

15.7. Annual Maintenance Planning Cycle. The maintenance planning cycle ensures proper and effective use of maintenance resources. Scheduler's use long-range planning to assess maintenance's ability to support quarterly flying-hour programs, programmed depot maintenance (PDM) schedules, TCTO programs, scheduled inspections and exercises. Automated products are used to assist in planning. Forecast and monitor requirements for the current and next two months. Include predictable maintenance factors based on historical data along with other inputs, such as flow times for maintenance, turnaround times and parts replacement schedules. Additionally, include all known operational events (e.g. exercises, deployments, surges) to determine maintenance's capability to meet operational needs. Maintenance supervision will review their applicable portion of the monthly maintenance plan and weekly schedule prior to submission to PS&D. To optimize aircraft and munitions support, maintenance and operations supervision will ensure the number of aircraft and/or munitions configurations are minimized and standardized.

15.7.1. Flying Hour Allocation. Using the Baseline Allocation message, PS&D provides affected workcenters the following planning factors not later than 20 August each year, or within ten working days after receipt of the flying hour allocations.

15.7.1.1. Required flying hours and estimated sorties and missions provided from operations, in monthly increments.

15.7.1.2. Flying days in each month.

15.7.1.3. Aircraft and aircrew alert requirements.

15.7.1.4. Known and projected TDY and special mission requirements.

15.7.1.5. PDM schedule.

15.7.1.6. Configuration and munitions requirements.

15.7.2. No later than 1 September or within ten working days after receipt of the planning factors, Maintenance supervision and Maintenance Analysis provides PS&D the following planning factors:

15.7.2.1. Estimated number of aircraft available by month (taking into consideration aircraft required for training).

15.7.2.2. A projected airframe capability statement.

15.7.2.3. Forecasted personnel capability (taking into consideration required annual training for maintenance personnel). **NOTE:** Not applicable to contract maintenance organizations.

15.7.2.4. The number of supportable sorties for each month in the quarter.

15.7.2.5. An estimated monthly attrition factor (N/A to AMC units) provided by maintenance analysis. This factor combines the operations, weather, and material (maintenance and supply) factors. Base the attrition factor on operational requirements. Do not assign attrition sorties to a specific aircrew for the quarterly planning process.

15.7.2.6. A recommended block scheduling pattern.

15.7.2.7. A statement of limitations.

15.8. Quarterly Scheduling.

15.8.1. Quarterly scheduling starts with the operational requirement for flying hours, UTE rate, airframe availability, alert, and other related scheduling data. The operations officer provides these requirements to maintenance supervision not later than 25 days before the beginning of the quarter. PS&D and operations scheduling officer discuss these requirements at the scheduling meeting before the quarter being scheduled.

15.8.2. Planners ensure the quarterly plans are as detailed and accurate as possible. Include known special missions, PDM schedules, higher headquarters commitments and lateral command support requirements. Refine and adjust monthly and weekly schedules, within unit capabilities, to meet the quarterly plan objectives. Use the following priority to determine which objectives to support if a lack of resources prevents meeting requirements:

15.8.2.1. Alert commitments.

15.8.2.2. Higher-headquarters directed missions.

15.8.2.3. Training.

15.8.3. The proposed quarterly schedule will be reviewed by the MXG/CC / OG/CC prior to the scheduled meeting no later than 14 days before the next quarter. Current operations briefs the unit's quarterly plan and include operational requirements, support capability, and any difficulties expected. Once an approved quarterly plan is established, it will be posted so that it may be viewed by both maintenance and operations. The schedule can be published electronically.

15.9. Monthly Scheduling. The monthly schedule refines quarterly requirements. The publishing method of a monthly plan will be at local option. Operational needs plus the attrition factor are the basis for developing the monthly flying and maintenance plans. Use the following sequence of actions to make sure monthly scheduling results in a contracted flying schedule requirement.

15.9.1. At the first weekly scheduling meeting of the month, the operations officer provides maintenance supervision with the estimated operational needs for the following month in as much detail as possible. Include known takeoff and landing times.

15.9.2. At the second weekly scheduling meeting of the month, maintenance supervision tells the operations officer whether requirements can be met or limitations exist. Make adjustments to the proposed schedule to satisfy maintenance and operational requirements.

15.9.3. At the third weekly scheduling meeting, with the WG/CC, formalize the next month's plan. During this meeting, operations and maintenance outlines past accomplishments, status of flying goals, problems encountered, projected maintenance capability, aircraft and equipment availability, and detailed needs for the next month. If conflicts arise between operational requirements and maintenance capability, present alternatives and limitations. The WG/CC decides what portion of the mission to support and to what degree.

15.9.4. When the WG/CC approves the proposed monthly flying schedule contract, include it as a portion of the monthly flying and maintenance plan. Monthly schedules may be published electronically provided local security requirements are met.

15.9.5. The monthly flying schedule combines all aspects of aircraft utilization and includes:

15.9.5.1. A detailed monthly operations utilization calendar which specifies total aircraft flying hours, total sorties and missions, alert requirements, and scheduled sortie or mission requirements, daily turn plans for each mission design series (MDS) by squadron, group, or wing.

15.9.5.2. Monthly maintenance requirements (as required).

15.9.5.3. Transient work schedule, if applicable.

15.9.5.4. Scheduled inspections, TCTOs, engine changes, time changes, delayed discrepancies awaiting parts, contract or depot maintenance, washes, corrosion control, training aircraft, and all other known maintenance requirements.

15.9.5.5. At MXG/CC option TMDE and SE scheduled inspections, contract or depot maintenance, TCTOs, time changes, delayed discrepancies, washes, and corrosion control.

15.9.5.6. Avionics and other off-equipment maintenance scheduled inspections, TCTOs, assembly or repair operations.

15.9.5.7. Engine in-shop inspections.

15.9.5.8. Munitions, photo, Electronic Countermeasures (ECM) and other mission loading or configuration requirements, including ammunition changes.

15.9.5.9. Total ordnance requirements for aircraft support.

15.9.5.10. Tanks, racks, adapters, and pylons (TRAP) and war reserve material (WRM) scheduled inspections, TCTOs, assembly, or repair operations.

15.9.5.11. Special activities, such as commander's calls, group temporary duty (TDY), and unit formations.

15.9.5.12. Monthly training schedules, if not published separately.

15.9.5.13. Detailed support requirements, including as necessary:

15.9.5.13.1. Petroleum, oil, and lubricants (POL) servicing.

15.9.5.13.2. Supply requirements.

15.9.5.13.3. Food service requirements.

15.9.5.13.4. Fire department requirements.

15.9.5.13.5. Security requirements.

15.9.5.13.6. Civil engineer requirements.

15.9.5.13.7. Airfield operations.

15.10. Weekly Scheduling. The Weekly Schedule is the final refinement to the monthly plan and results in the weekly flying and maintenance schedule. The operations officer and maintenance supervision review the proposed weekly flying and maintenance schedule prior to submitting it to the plans and scheduling office for final review and compilation. At the scheduling meeting, evaluate the past week's accomplishments (to include Flying and Maintenance Scheduling Effectiveness) and negotiate and approve refinements to the coming week's schedule.

15.10.1. Not later than 2 workdays before this meeting the operations officer gives maintenance supervision the following information (as required):

15.10.1.1. Aircraft takeoff and landing times.

15.10.1.2. Configuration requirements.

15.10.1.3. Munitions requirements.

15.10.1.4. Fuel loads.

15.10.1.5. Special or peculiar mission support requirements.

15.10.1.6. Alert requirements.

15.10.1.7. Exercise vulnerability.

15.10.1.8. Deployments.

15.10.1.9. Off-base sorties.

15.10.1.10. On equipment training requirements.

15.10.1.11. Other special requirements.

15.10.2. Once the weekly schedule is approved, it becomes the final planning guide for both operations and maintenance and becomes the basis for deviation reporting. Follow it as published (may be electronic) or as amended by coordinated changes. PS&D distributes the schedule to each appropriate activity and workcenter no later than Friday morning preceding the effective week.

15.10.3. Units publish a weekly schedule for normal home base operations and during deployments. Include the following in the weekly flying and maintenance schedule as applicable:

15.10.3.1. Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled takeoff and landing times, aircraft or equipment scheduled use times, configurations, and special

equipment requirements. **Exception:** Units tasked by Tanker/Airlift Control Center (TACC) will not include the aircraft tail numbers.

15.10.3.2. Spare aircraft requirements. Spare requirements are printed by day for each operations squadron. Generate only the absolute minimum of spare aircraft.

15.10.3.3. Scheduled maintenance actions, by aircraft and equipment serial number, to include inspections, TCTOs, time changes, contract and depot inputs, engine changes, washes or corrosion control, document reviews, and deferred discrepancies. These items will be used to track maintenance scheduling effectiveness.

15.10.3.4. Required pre-inspection and other maintenance meeting schedules to include minimum attendees.

15.10.3.5. Wash rack use.

15.10.3.6. On Equipment training requirements.

15.10.3.7. At MXG/CC option TMDE and SE inspection or maintenance schedule by type, serial number, or identification.

15.10.3.8. A list of new or revised publications, TO indexes, inspection work cards, checklists and -6 codebooks. Include date of change. Automated products, such as Automated Technical Order Management Systems (ATOMS) or Joint Computer Aided Logistics System will be used.

15.10.3.9. The MXG/CC and OG/CC will develop specific procedures to record and coordinate changes to the weekly schedule using an AF Form 2407 or locally devised or computer generated products as long as they provide all the information contained in the AF Form 2407. Include minimum approval levels for approving changes to the weekly schedule.

15.10.3.10. Any change to the printed schedule will require an AF Form 2407 with the following exceptions: (1) a change to the original printed takeoff or landing time of 15 minutes or less, (2) a change of aircrew names, ranges, or airspace, (3) a change arising after the first crew ready time and prior to the next day's flying, and (4) tail number interchanges made 12 hours or less prior to first crew ready time.

15.10.3.10.1. Changes made during the daily scheduling meeting also require an AF Form 2407.

15.10.3.10.2. The agency requesting the change initiates the AF Form 2407 a specific reason for the change, and coordinates it through the affected Production Supervisor, maintenance supervision, operations officer, operations group, maintenance group, and wing staff agencies. (i.e. MOC, PS&D, Analysis, etc.)

15.10.4. Aircraft Maintenance Scheduling Effectiveness (MSE) Rate. The MSE rate is the percentage of scheduled aircraft maintenance events that were started on or prior to the date printed in the weekly schedule. An event is considered started when the first step of the actual scheduled event is performed. Examples of this would be the first step listed in the pre-dock work card of a periodic or isochronal inspection (for example, the depaneling, defueling, or washing, etc.) or the physical preparation of an aircraft to start a scheduled wash (for example, taping, etc.). Examples of when not to count an event as started would be the initial document review for a periodic or isochronal inspection, or when an aircraft is towed to the location where the scheduled maintenance is to be performed.

15.10.4.1. Purpose. The purpose of the MSE rate is to measure the success of a unit in executing its planned maintenance schedule. Scheduled maintenance events are weighted using a measurement criteria intended to reflect the relative magnitude of the events. Table 15.1 lists the scheduled maintenance actions and their weight factors.

MSE Rate = (Maintenance points earned/ maintenance points possible) X 100.

Air National Guard Standard is 95 percent.

Table 15.1. Scheduled Maintenance Actions. (Note1)

ITEM	SCHEDULED ACTIONS	POINTS
1	Phase Inspection: Periodic (PE) or Isochronal (ISO)	30
2	Home Station Check (HSC)/Hourly Post Flight (HPO)	20
3	Time Compliance Technical Order (TCTO)	20
4	Engine Time Change (note 2)	20
5	Aircraft Time Change (note 2)	20
6	Special Inspection (note 2)	15
7	Wash, Corrosion, Prep, and Paint (note 2)	15
8	Delayed Discrepancy (note 2)	5
9	Document Review	5
10	Transfer Inspection or Acceptance Inspection	3
11	Maintenance and Aircrew Trainers/Static Display	2
12	Other Scheduled Action (note 3)	2

NOTES:

1. Points are only earned for scheduled maintenance events on tail numbers printed in the weekly schedule. Use the event completion month as the basis for when to report points possible and earned.

2. Non-PE, ISO, HSC, or HPO.

3. Action not listed in the first 11 categories.

15.10.4.2. Nonchargeable MSE Cancellations. Do not count against (nor compute into) any of the following scheduled maintenance actions in the MSE rate: maintenance canceled due to severe weather; aircraft not able to return to base because they are broke off station; impounded aircraft; canceled maintenance actions to comply with a HHQ tasking; and notification of an immediate action TCTO or OTI that prevents the scheduled maintenance from being performed.

15.11. Documentation.

15.11.1. Depot Programs. PS&D keeps a current serial number listing of projected inputs and outputs of aircraft and equipment into depot repair programs. Schedulers use the AFTO Form 103, Aircraft/Missile Condition Data, to record certified maintenance needs. PS&D then coordinates any resulting changes to the depot program with affected scheduling functions.

15.11.2. Major Maintenance Work Processing.

15.11.2.1. PS&D will:

15.11.2.1.1. Coordinate on all TO 00-25-107 requests for AFI 21-103 reporting. The workcenter, in conjunction with QA is responsible for drafting the TO 00-25-107 request. Specifically, PS&D is only responsible for making the appropriate possession code changes in MIS and drafting AFI 21-103 messages. Depot level assistance provided by contractor support is accomplished IAW contract specifications.

15.11.2.1.2. In conjunction with QA, develop procedures for routing all major maintenance requests to ensure all affected parties are informed.

15.11.2.1.3. Upon arrival of depot team, PS&D will conduct an initial meeting.

15.11.2.1.4. Once work is completed, PS&D will ensure a completed copy of the work package is placed in the aircraft historical file and specific work accomplished entries are made on the aircraft/component automated AFTO Form 95s IAW the 00-20 series technical orders.

15.11.3. Aircraft/component history file.

15.11.3.1. Filing and disposition. The documentation function will establish a file for aircraft and maintenance historical documents (Jacket File) according to AFMAN 37-123, and TO 00-20-1. Dispose of documents according to AFMAN 37-139. MXG/CC option for decentralized records.

15.11.3.1.1. Reviews forms marked or sent for filing to ensure documents are complete, and are filed sequentially.

15.11.3.1.2. Maintain inactive (pulled) AFTO 781 series forms IAW AFMAN 37-139, Table 21-6 and Rule 15. AFTO Form 781s will be reviewed to ensure that no forms are missing, page number blocks are correctly filled in, and the from date matches the to date from previous forms (781A's), before filing. If forms are missing, send a missing forms letter to appropriate section chief with a five duty day suspense. If a response is not returned within five duty days, notify maintenance supervision. If forms cannot be located, file the missing forms letter in the jacket file where the missing forms should have been filed.

15.11.3.2. Individual documents are kept for end items, subsystems, and components in accordance with the TO 00-20 series, this instruction, AFCSM 21-529, AFMAN 37-123, AFMAN 37-139, and the applicable -6 TOs. A MIS automated history event (AHE) is used in place of AFTO Forms 95 to document significant historical events on aircraft and engines, AGE and armament equipment. When an AFTO Form 95 is initially automated, an entry will be made on the manual AFTO Form 95 indicating the date and location of the event. Additionally, the following statement will be entered onto the original AFTO Form 95 in ink; "Automated history started this date". A MIS Automated Form 95 will be printed out, attached to the original AFTO Form 95, and filed in the equipment record. In addition to the procedures above, a new

automated 95 will be printed out for aircraft installed components requiring an AFTO Form 95, by section 5 of the applicable -6 TO and attached to the original AFTO Form 95 whenever an entry is made on the automated 95. A copy of a MIS equivalent must be printed/down loaded (on disk or CD is acceptable) annually, and be available at all times. Documents for non-powered AGE, training equipment, and common equipment items requiring very little maintenance documentation may be grouped together in a single folder or area so that there is no need to keep a record folder on each individual item. When this is done, documents for similar items should be grouped together, and the recorded information should be identifiable to particular pieces of equipment.

15.11.3.3. When aircraft are temporarily moved to operating locations away from the unit of assignment, send only those documents necessary to ensure safety of flight and current aircraft status. Units develop an OI for records taken to deployed location based on duration of TDY, and peculiar operating requirements. The accumulated airframe hours, TCTO status, time change item status data on installed engines, and critical components are sent from the operating location to the parent unit as specified by (the command) when pertinent documents are not sent with the aircraft.

15.11.3.4. PS&D will develop an OI for freezing and consolidating aircraft and equipment records in the event of an accident or mishap.

15.11.3.5. Monitor the inspection and time change subsystems in the MIS. Semi-annually review all inspection and time change job standards against all assigned aircraft. As a minimum, review for overdue, missing and excess inspections and time change items. Document the review. Establish a suspense date for the correction and maintain the report on file in PS&D until the correction is verified.

15.11.3.6. Load a JST for aircraft dash 6 special /scheduled inspections in MIS which have a frequency of more than 30 days or 50 hours or more and for all time change items. For frequencies less than 30 days or 50 hours, determine locally if a JST is required.

15.11.3.7. Ensure Time Change Items identified in TO 00-20-9 are forecasted within the appropriate frequency. Refer to TO 00-20-9 for correct forecasting frequencies. Compile all CAD/PAD forecasts and send to the appropriate ANG/LGMW representative with an info copy to munitions. Squadrons will submit a forecast for non-munitions items to their supply section.

15.11.3.8. Complies with hangar queen aircraft records management.

15.12. TCTO Management. PS&D administers and manages the TCTO program. TCTOs and USAF, ANG, or directed modifications and inspections provide units with instructions for doing a one-time change, modification, inspection of equipment, or installation of new equipment (includes applicable Federal Aviation Administration (FAA) air worthiness directives, and original equipment manufacturer service bulletins and service instructions after concurrence by ANG). Process ANG one-time inspections or modifications in the same manner as ALC TCTOs in the automated maintenance management system with compliance periods, remove from service, and rescission dates as prescribed in TO 00-5-15, *Air Force Time Compliance Technical Order System*, Table 2-1. ANG and local inspections are referred to as one-time inspections (OTI). TCTOs are categorized as either depot, organizational, or intermediate level, and are considered scheduled maintenance, (except for immediate action), and are integrated into maintenance planning cycles. The concurrent accomplishment of TCTO work with other

scheduled or unscheduled maintenance (e.g. Phase, ISO, HSC, HPO) will be considered. When practical, all primary operating stock (POS) and readiness spares package (RSP) assets will be modified before the modification of in-use or installed items. Manage TCTOs according to automated management systems' documentation, TO 00-5-15.

15.12.1. Management of TCTOs. QA reviews each incoming TCTO to determine applicability to assigned equipment. When TCTOs are applicable, QA forwards sufficient "working copies" to PS&D for verification of individual equipment compliance status or any prerequisite TCTO requirements. The engine management section TCTO manager does the same for engine-related TCTOs. PS&D (AMC will load TCTOs for G081 users) will load the basic TCTO data into the MIS according to systems' documentation, or into the manual system according to TO 00-20-2.

15.12.1.1. The appropriate PS&D management function (Engine Management (EM), munitions, AGE, or TMDE) administers and manages the TCTO program, initially loads the TCTO into the MIS, if an initial TCTO load is not received from REMIS, presides over the TCTO meeting, schedules aerospace equipment and installed commodity TCTOs, and ordering kits, parts, or tools required by the TCTO. **NOTE:** For aircraft and aircraft related commodity TCTOs, PS&D will order all kits/parts/special tools required for accomplishment. The owning PS&D schedules the TCTO for accomplishment and prepares a work order in the MIS for each affected end-item, including spares.

15.12.1.2. If a condition or inspection TCTO generates a requirement for parts, the performing workcenter creates a new JCN and enters the discrepancy in the AFTO Form 781A or applicable equipment record, and orders the required parts as normal wear out and replacement. Condition and inspection TCTOs are complete when the inspection is finished.

15.12.2. General TCTO Processing and Procedures.

15.12.2.1. QA will:

15.12.2.1.1. Distribute TCTO copies to performing and assisting flights or sections, Supply Materiel Storage and Distribution Flight and Inspection Section with a suspense cover letter to LRS requesting the number of items in supply, including war reserve materiel, affected by the TCTO.

15.12.2.1.2. Perform an initial evaluation of the TCTO.

15.12.2.1.3. Report all deficiencies in technical instructions and kit-proofing to the appropriate TCTO manager as directed by TOs 00-5-1 and 00-5-15.

15.12.2.1.4. Attends TCTO planning meetings.

15.12.2.1.5. Provide technical support to performing flights or sections.

15.12.2.2. The PS&D (EM, munitions, AGE, or TMDE as appropriate) will:

15.12.2.2.1. Determine the total number of end items that require the TCTO upon receipt from QA.

15.12.2.2.2. Chair a TCTO planning meeting with attendees from QA, owning and performing flights and sections, and LRS, if required. Minutes of this meeting will be recorded on AF Form 2410. Minutes will provide an overall plan to implement the TCTO. They will include TCTO applicability by ID number (or applicable part number or serial number for commodity TCTOs), purpose of the inspection or modification, scheduling parameters, remove from service date, a

review of the TCTOs procedures, and any supply requirements identified before the TCTO can be scheduled for accomplishment. All attendees sign the AF Form 2410 at the conclusion of the planning meeting indicating agreement with the conditions.

15.12.2.2.3. Establish a TCTO folder for each active TCTO, including the basic TCTO and supplements (as applicable), meeting minutes, AF Form 2410, AF Form 2001, **Notification of TCTO Kit Requirements** (if required), messages, and the supply cover memorandum from QA. Once the TCTO has reached its rescission date, print a MIS product showing the current status of equipment and place this product in the TCTO folder. Move the folder to an inactive TCTO file. PS&D will maintain the folder until the TCTO is rescinded in the applicable TO index, then dispose of according to AFI 37-139, *Records Disposition Schedule*. PS&D will delete the TCTO from CAMS at that time. TCTOs will not be deleted from the MIS (CAMS/G081) prior to the rescission date.

15.12.2.2.4. Add an 802 action for QA when a TCTO affects equipment weight and balance.

15.12.2.2.5. Initiate three copies of the AF Form 2001. Forward two copies of the form with a copy of the TCTO to the LRS TCTO monitor. For locally obtained parts, prepare an AF Form 2001, listing each item by stock number, noun, and quantity required. Assign ID numbers to kits as they are received.

15.12.2.2.6. Attend monthly supply TCTO reconciliation meeting if required (AFMAN 23-110). Using the TCTO reconciliation listing from supply (AFMAN 23-110) discuss the number of kits on hand, any “mark for” changes, and estimated kit delivery dates compared with the time to accomplish parameters, and measured against TCTO remove from service dates.

15.12.2.2.7. Validate TCTO status codes in the automated MIS for tracking and scheduling purposes. The owning PS&D will assign Event Identification Description (EIDs) in the MIS when TCTOs are scheduled. Review suspense validation inputs prior to processing the TCTO suspense and updating automated historical records. Schedule all workable TCTOs for accomplishment prior to permanent equipment transfer or storage input.

15.12.2.2.8. Notify appropriate ANG/LGM functional managers, by message, when local managers anticipate a problem with active TCTO compliance within prescribed time limits. Message should include: TCTO number and narrative, total units affected, total units complete, kits on hand, kits on order, estimated delivery date, requisition number, and narrative of the problem.

15.12.2.2.9. Reports status of TCTOs that cannot be reported under “how malfunctioned” codes 793, 797, 798, 801, 802, or 911 IAW the MIS, and TO 00-20 series. **NOTE:** For CAMS units only, the PS&D monitor will coordinate with MDSA to ensure the CAMS/REMIS TCTO synchronization program is run monthly.

15.12.2.2.10. Notify the appropriate workcenter function when a TCTO requires an entry to be made in current equipment documents.

15.12.2.3. The workcenter will:

15.12.2.3.1. Report all deficiencies in technical instructions and application to the applicable PS&D and QA.

15.12.2.3.2. Inventory TCTO kits for completeness prior to starting work. If a discrepancy exists, contact the appropriate PS&D to resolve shortages.

15.12.2.3.3. Perform the inspection or modification procedures outlined in the TCTO and documents results or findings in the automated maintenance management system or the appropriate manual system. The accuracy of documentation is the responsibility of flight or section supervision. If a TCTO calls for inspection only, and a discrepancy is discovered that requires parts, complete the EID/JCN for the TCTO and load a separate EID/JCN against the equipment.

15.12.2.3.4. Attend TCTO planning meetings. Thoroughly review the TCTO prior to the meeting. Clarification of any requirements should be brought to the attention of QA and the appropriate PS&D during the meeting.

15.12.2.3.5. Requisition parts required after the inspection portion of a TCTO that states “inspect and replace if found defective” if the part is not required to start the TCTO.

15.12.2.3.6. Validate technical instructions and data on AFTO Form 82, **Certificate-Proofing TCTOs/Kits**, when performing TCTO kit proofing (TO 00-5-15).

15.12.2.3.7. Many TCTOs require the modification of installed components. After this type of TCTO has been complied with, ensure modified components are not replaced with unmodified components. If LRS issues an unmodified component, it is identified as unmodified and returned to LRS.

15.12.2.3.8. Performing workcenter will notify QA prior to start of first TCTO.

15.12.3. Control and Transfer of TCTO Kits. Transfer aircraft or equipment with TCTOs still pending completion with their applicable TCTO kits. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. AFMAN 23-110, TO 00-5-15, and TO 00-5-1 contains detailed guidance for the transfer of TCTO kits.

15.12.4. Interim TCTO Status Reporting. ANG/LGM may direct daily or weekly manual status reporting on immediate, urgent, or routine action safety TCTOs as required.

15.13. Time Change Items (TCI). PS&D will identify, monitor, project, and schedule aircraft installed TCIs into maintenance plans. Engine management (EM) is responsible for monitoring, projecting, and including engine life limited component TCI requirements into aircraft maintenance plans. Schedulers forecast only those selected items specifically identified in any of the following: TO 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items*; FSG 13, and Material Management Code AQ Items; applicable commodity TOs; or the aircraft -6 TO. PS&D:

15.13.1. Prepares the time change requirements forecast IAW 00-20-9 and AFI 21-201. Items designated as TCIs will be replaced at specified intervals. Unless otherwise specified in -11, -14, and -6 technical orders, TCIs are considered due for replacement at the hourly post-flight, phase inspection, periodic inspection, home station check (HSC) or ISO inspection nearest to the replacement date. Accurate and timely forecasting to LRS is critical to ensure all required TCIs are available before the forecast due date. The following procedures apply to ensure items are available prior to the component change date:

15.13.1.1. Monitors and requisitions TCI requirements based on projected equipment utilization. PS&D will forecast TCIs IAW 00-20-9 and AFI 21-201 and consolidates TCI forecasts for selected items listed in TOs 00-20-9, commodity, and aircraft specific -6 TOs. Use the Standard

Base Supply System (SBSS) module of the MIS if available.

15.13.1.2. Validates TCI requirements 45-60 days prior to the next calendar year quarter with the Munitions Accountable System Officer (MASO). Validate current requirements against the annual forecast. Make corrections to the forecast based on aircraft utilization.

15.13.2. Orders all items requiring time change IAW 00-20-9 and AFI 21-201. Notify the Munitions Element of the need to order munitions items IAW AFI 21-201. Forward only **AF Forms 2005, Issue/Turn-In Request**, to munitions. Include the validated forecast time change grounding date of the aircraft and the month the items are required. Use SBSS procedures if available.

15.13.3. Schedules the time change in the automated system and incorporates it in the weekly schedule upon notification by LRS that the part is available.

15.13.4. Reviews the data entered by the performing workcenter and updates the suspense validation in the automated maintenance management system when the time change is completed (not applicable to units using G081).

15.13.5. PS&D will establish a JST for both the date of manufacture (DOM) and date of installation (DOI) for cartridge actuated devices (CAD), propellant actuated devices (PAD), and life sustaining items in the aircraft -6 TO and applicable commodity TOs.

15.13.6. Order non-CAD/PAD or engine time change items up to 60 days (but not less than 10 days) prior to the need date. Ordering date should be based on the availability of items in supply.

15.13.7. Complies with Base requirements for ordering hazardous materials (Example: Batteries) that are time changed.

15.13.8. Coordinates management of respective time change items with egress, survival equipment, and life support.

15.13.8.1. Schedules drogue chute TCIs, except chute harness, for replacement during the drogue chute repack before the expiration of the component service or shelf life. These components will not be over flown without an approved waiver from the appropriate item manager.

15.13.8.2. Maintain a copy of the approving message on file until the extended item is replaced when life-sustaining TCIs (identified with an asterisk in the -6) or CAD/PAD items have been extended past their replacement dates by the applicable ALC/SPD. CAD/PAD TCIs with 9 months or less service life remaining may be turned into munitions operations and will not be reissued. Maintenance plans will reflect replacement dates to coincide within the 9-month parameter.

15.13.9. Loads only the DOI or DOM that comes due first against a specific part or serial number. When the DOI and DOM frequencies are identical, maintain a job standard for the DOM as a minimum. N/A for G081 units.

15.14. Aircraft Configuration Management (ACM). Aircraft Configuration Management (ACM) provides unit managers the capability to determine the actual versus approved configuration of an aircraft. The intent of the configuration management subsystem is to ensure selected serially controlled and/or time change items (TCI) are properly loaded to the MIS database. Of major concern are accurate, approved part numbers, quantity per assembly (QPA)

and next higher assembly (NHA) items by work unit code (WUC). PS&D has overall responsibility for the aircraft configuration management subsystem of MIS.

15.14.1. The configuration tables (For F-15s, and F-16s) are pushed to each unit from REMIS to CAMS as aircraft configuration changes occur. Maintenance personnel discovering a tracked part number not on the approved configuration table will send the part number for validation to the configuration specialist. This is accomplished through CAMS TRIC PNV (CAMS/REMIS Part Number Validation). Upon receipt of the part number, the configuration specialist approves or disapproves the new part number in REMIS. If approved, maintenance personnel will load the part number in the CAMS. Configuration tables will be changed by the ALC or configuration specialist as a result of a TCTO modification.

15.14.2. PS&D will coordinate the daily resolution of configuration management notices.

15.14.3. PS&D will provide Generic Configuration Status and Accounting Subsystem (GCSAS) assistance to maintenance personnel.

15.14.4. PS&D will develop an OI for verifying configuration items during aircraft phases. As a minimum, the following will be accomplished: PS&D will request CAMS DBM to process screen 942, Actual Configuration Set-up, using the ID number of the aircraft entering Phase. A copy of this product will be given to the phase dock chief, at the pre-dock meeting, for verification/correction in CAMS of all items out of configuration during the phase inspection. This document will be turned-in to PS&D during the post dock meeting. Once turned in, PS&D will request the DBM process screen 942 for the same tail number to verify corrections. Completed/verified copies of the output product will be maintained in PS&D until the next scheduled phase for that aircraft. **NOTE:** CAMS units only. PS&D will coordinate with MDSA to ensure aircraft synchronization programs are accomplished upon transfer/acceptance of aircraft and after Phase inspection.

15.15. Transfer/Acceptance Inspections.

15.15.1. Transfer Inspections:

15.15.1.1. PS&D in conjunction with QA, develop a local checklist for aircraft and equipment transfer and acceptance inspection. This checklist will meet all 00-20-1, (unless waived) and may include gathering of historical records (i.e. NDI records, Egress records, Weight and Balance records, JOAP records, Strut records, etc.), and items listed below. Ensure transfer and acceptance inspection checklists are loaded to a profile JST and scheduled in MIS.

15.15.1.2. Conduct a transfer pre-dock meeting one-duty day prior to start of the aircraft transfer inspection. All items to be accomplished during the transfer inspection will be documented on an AF Form 2410 and will be scheduled in MIS.

15.15.1.3. Run CAMS (PRA or Transfer of Equipment (TRE)) (or G081 equivalent) and complete a total verification of all time change items installed on the transferring aircraft. Items to be verified include; correct computation of all due dates/hour/cycles based upon date of manufacture, date of installation, installed times, etc. Ensure all propulsion -6 special inspections are accomplished when engine time/cycles are within the specified plus or minus window.

15.15.1.4. All errors will be annotated on the PRA or TRE and corrected in MIS. A new PRA or TRE will be run to verify errors were corrected in MIS. The new PRA or TRE will be signed,

dated, and placed in the aircraft jacket file.

15.15.1.5. For CAMS units only: ensure the CAMS/REMIS synchronization programs are processed and errors are corrected prior to transfer. Conduct a transfer post dock.

15.15.1.6. Ensure copies of TRE, Significant Historical Data (SHD), Engine trending and performance data, and Automated Records Check are processed. Data will be saved to a 3½ inch floppy or a CD-ROM and placed in aircraft jacket file or G081 equivalent.

15.15.2. Acceptance Inspections.

15.15.2.1. Additional guidance may be found in TO 00-20-1, TO 2-1-18, AFI 21-103, and applicable -6 and -21 technical orders.

15.15.2.2. For aircraft returning from depot/CFT work, owning workcenters will perform acceptance inspections to determine equipment condition as prescribed to TO 00-20-1, and AFI 21-103. Ensure that aircraft acceptance inspections include a validation of completed depot and contractor maintenance requirements including accomplished, and scheduled but not accomplished TCTOs. **NOTE:** Acceptance inspections by the gaining unit may be accomplished at the losing unit in conjunction with their transfer inspection as long as a MOA between units has been established and approved by the ANG/LGM.

15.15.2.3. The wing AVDO will request approved configuration tables for F-15, and F-16 units, and actual configuration tables for all other MDSs using CAMS screen 334 (CAMS units only).

15.15.2.4. PS&D in conjunction with Database Management (DBM) will process the aircraft transfer file from REMIS IAW AFCSM 21-576, Generic Configuration Status Accounting System (GCSAS). **NOTE:** DBMs must process NFS6A0, screen 47 and 942 upon receipt of approved file from REMIS. This must be accomplished prior to processing CAMS program NFS3W0 (actual configuration).

15.15.2.5. Ensure maintenance performs a complete aircraft -21 series TO equipment inventory IAW AFI 21-103.

15.15.2.6. CAD/PAD inspections are to be accomplished on newly assigned aircraft, and upon those returning from depot/PDM, (except when the aircraft was input for paint only).

15.15.2.7. Aircraft will not be flown until all time changes, special inspections, engines and engine components are loaded and due dates/times are verified in MIS. PS&D will ensure this validation is accomplished. Completed validations will be placed in the aircraft jacket file. **NOTE:** Units using CAMS may use the CAMS/REMIS transfer system to populate the CAMS database. TCTO records will auto process provided the TCTO is previously loaded in the gaining unit's CAMS database.

Chapter 16

WING WEAPONS MANAGER AND WEAPONS STANDARDIZATION

16.1. Wing Weapons Manager (WWM). The wing weapons manager will be a 2W100 CMSgt assigned directly under the MXG/CC. The WWM is the wing's focal point for all weapons loading and armament systems related matters. The WWM's primary efforts focus on compliance, continuity, and standardization. Weapons activities required to support the generation of peacetime training sorties generally do not reinforce primary combat skills. Therefore, the WWM plays a key role in ensuring that the unit is able to produce combat loaded aircraft. The WWM is charged with providing technical and managerial advice to senior leaders in matters of weapons loading and armament systems. The wing weapons manager coordinates with the weapons sections, armament section, wing weapons and tactics, the munitions element, and other unit agencies on weapons related matters. The WWM has the authority to cross group and squadron functional lines. In cases where the function is not represented by full time personnel, the MXG/CC will appoint a full time representative. The WWM:

16.1.1. Is the functional manager for all 2W1X1 personnel. The WWM is the wing POC for all 2W1X1 manpower issues within the wing to include coordination on all manning, workcenter and organizational changes, AFSC changes, cross/retraining requests and waivers. The WWM informs ANG/LGMW of any proposed actions that may drive changes in unit manpower requirements.

16.1.2. Assigns and balances 2W1X1 grades, experience and skill-levels between all 2W1X1 workcenters across the wing.

16.1.3. Designates the loading standardization crew (LSC), academic instructors, and lead crews in writing. LSC and standardization lead crew (SLC) Team Chief will be a 2W171 with a minimum grade of TSgt if unit manning permits. Provides load crew training and certification program guidance and monitors implementation.

16.1.4. Informs the MXG/CC, SQ/CC, and maintenance supervision of any issues or problems affecting load crew status.

16.1.5. Reviews the wing/squadron SORTs report prior to submission to the ANG. Any equipment or load crew shortfalls which affect the wings C-rating in SORTS will be included and comments provided. Comments will provide reason, action taken and proposed get well dates for all 2W1 issues reported in SORTs. SORTS will be reported IAW AFI 10-201.

16.1.6. Monitors overall load crew status and advises the MXG/CC when the number of fully certified load crews falls below the UCML/TTML minimum authorizations. If this occurs and cannot be corrected within 60 days, the following information is sent by secure message, through the MXG/CC, to the ANG/LGMW (**NOTE:** All 2W1X1s working outside their respective workcenter or DAFSC will be qualified/certified if possible to fill load crew shortfalls before sending a message to the ANG/LGMW).

16.1.6.1. Number of 2W1X1 personnel authorized and assigned by workcenter, skill level (primary AFSC) and grade for the entire wing. Include all workcenters to which 2W1X1 personnel are assigned.

16.1.6.2. Number of 2W1X1 personnel working outside the AFSC/workcenter.

16.1.6.3. Number of 2W1X1s not able to perform primary duties and the reason.

16.1.6.4. Number of fully certified crews. Include corrective action, get well date, and 30/60-day load crew status projection. If the standard cannot be reached in 60 days, provide the reason.

16.1.6.5. Number of load crews formed but not fully certified. List crews and specific items for which they are not certified and qualified.

16.1.6.6. Remarks: List limiting factors, equipment shortages, availability of training aircraft, etc.

16.1.7. Reviews DOC Statements, UCML/TTMLs, and O-Plans. Coordinates with the AMXS Weapons Element supervisor, Munitions Storage Area supervisor and the Weapons and Tactics Officer on the Unit Committed Munitions Listing (UCML) on at least an annual basis. They as a collective group will develop the units Standard Conventional Load (SCL), utilizing the UCML as the basis of information.

16.1.8. Resolves scheduling conflicts affecting weapons load training programs.

16.1.9. Provides input during development of local exercises involving weapons loading/armament functions, and serves as an advisor/evaluator to the wing exercise evaluation team.

16.1.10. Ensures a recognition program for load crew and armament personnel is established.

16.1.11. Ensures standardization of load crew CTKs by aircraft MDS to the maximum extent possible to provide interoperability of load crews. CTKs should contain all tools to accommodate common loading and maintenance functions. Weapons load crew CTK MILs will be signed by the WWM.

16.1.12. Ensures sufficient quantities of serviceable load training munitions are available to support load training programs. Reviews and validates all Munitions Forecasts submitted by WLT and the Armament Element prior to submission to ANG/LGMW.

16.1.12.1. Training munitions: These numbers reflect the bare minimum of munitions required strictly for weapons load crew certification and recurring training (WLT). These munitions are forecasted by and assigned to, weapons load training (W1) accounts. Sortie Generation and aircrew classroom training munitions will be forecasted for and maintained on separate supply accounts.

16.1.12.2. Units may request additional quantities of munitions than specified on this table but will not be allocated munitions unless sufficient quantities are available to do so. The UCML/TTML will be the source document for WLT munitions requirements and authorizations.

16.1.12.3. Units with multiple MDS will only be authorized the minimum allocation/authorization of WLT munitions to facilitate load training on all MDS IAW Table 16.1. EXAMPLE: If a base has both F-15A and F-16 aircraft assigned and both MDS are tasked on the UCML/TTML for GBU-12 then only two, not four, GBU-12's will be allocated to support both MDS. If a situation exists where the WLT facilities are physically separated and the WWM determines it negatively impacts load crew training to move munitions from one to the other, then each facility will be authorized the minimum number of tasked training munitions.

Table 16.1. Training Munitions Authorized for Fighters.

FIGHTERS	F-15 A/BC/D	F-16	A-10
AIM-7	2	2	
AIM-9M / AIM-9X	2/2	2/2	2/0
AIM-120	2	2	
AGM-65		2	2
AGM-88		2	
MK-82 conical		3	6
MK-82 air		3	6
MK-84 conical		2	2
MK-84 air		2	2
GBU-10 MK-84/BLU-109		1/1	
GBU-12		2	2
GBU-15		2	
GBU-24 MK-84/BLU-109		1/1	
EGBU-27 BLU-109**		2	
GBU-27 BLU-109		2	
CBU-87/89/97			2

** Denotes the need for a D1 type trainer to allow on aircraft checks/programming of the weapon.

16.1.13. Ensures introductory training is provided to newly assigned personnel on aircraft familiarization, safe for maintenance, explosive safety, weapons release and gun systems maintenance prior to performing duties. Training, certification and qualification required to load munitions on aircraft are only provided by Weapons Standardization.

16.1.14. Based on unit taskings, designates the number of load crews, other than the LSC and lead crews, which are certified on support or limited use munitions.

16.1.15. In coordination with the explosive safety officer and airfield management, develops a wing OI for parking, launch and recovery of explosives-loaded aircraft, end of runway procedures, and impoundment of aircraft with hung ordnance or jammed gun systems. The OI

will include requirements to:

16.1.15.1. Arm and de-arm munitions-loaded aircraft in approved areas (this could include the normal aircraft parking area).

16.1.15.2. Procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. As a rule, ensure aircraft guns and rockets are "safed" in the de-arm area before aircraft return to open ramp parking areas.

16.1.15.3. Control access to aircraft until munitions are made safe. Immediately-prior-to-launch and "safing" procedures may be performed in the aircraft parking area for contingencies, unit exercises and daily-use training munitions as quantity distance clearance allows with the approval of wing safety, airfield management and the MXG/CC.

16.1.16. Monitors weapons release/gun fire-out rates, malfunctions and corrective actions to assess weapons and armament systems reliability. Takes appropriate action to resolve any problems and contacts ANG/LGMW for assistance if required.

16.1.16.1. Weapons release reliability rates will be considered 100 percent unless there is a documented weapons malfunction reported by the aircrew. Rates are calculated by dividing the number of successful releases by the number of pilot reported attempts. (Goal: 99%)

16.1.16.2. The gun fire-out rate will be considered 100 percent unless there is a documented gun system malfunction reported by the aircrew. Rates are calculated by dividing the number of successful gun sorties by the total number of gun missions flown. (Goal: 98%)

16.1.17. Ensures compliance with local accountability procedures for AFI 36-2217, *Munitions Requirements for Aircrew Training*, and AFI 21-201. In conjunction with the weapons sections and munitions element, develops a standard local format for the AF Form 2434, **Munitions Configuration and Expenditure Document**. A computer generated product may be used if it contains all required information.

16.1.18. Ensures requirements stated in section 13.8 in regards to lost tools are adhered to.

16.1.19. Ensures sufficient computer systems are assigned to support network and modem interface with the WS, weapons sections, armament section, automated training systems and other agencies.

16.1.20. Ensures approval of locally manufactured equipment (LME) if not included in tech data or the Munitions Material Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL <https://wmnet.eglin.af.mil/mmhe>.

16.1.20.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

16.1.20.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment

(LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. **(EXCEPTION:** LME that is designed to or will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, etc.) will be coordinated through the ANG/LGMW for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE pamphlet by sending approved drawings to the ANG/LGMW for evaluation/coordination, prior to the ANG/LGMW forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

16.1.20.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit that is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph 16.1.20.2. Stands and storage racks purchased through supply, or locally purchased, must also comply with the above safety standards.

16.1.20.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained with all major MMHE/LME items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

16.1.21. Conducts a wing weapons meeting semi-annually with representatives from WS, wing safety, Quality Assurance, munitions element, armament section, and the weapons sections to discuss and resolve any wing weapons issues, concerns or problems.

16.1.22. Not used.

16.1.23. Ensures WRM Rack, Adapter, Pylons (RAP) and guns/components are serviceable to support OPLAN tasking.

16.1.24. Ensures inspections on all aircraft AME, NIE and gun systems are performed on schedule to prevent overdue inspections or overfly of equipment.

16.1.25. Monitors the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of Time Compliance Technical Order (TCTO) modifications. Submits 9405 Report to ANG/LGMW quarterly or more often if needed based on mission impact or directed by ANG/LGMW.

16.1.26. Appoints supply point custodian for training munitions.

16.1.27. Inform the ANG/LGMW, within 24 hours, of any significant weapons or armament related issues such as dropped equipment and aircraft release reliability or deficiency problems, and weapons safety or mishap issues.

16.1.28. Ensure requirements stated in section 15.4. Aircraft Generation Planning are adhered to.

16.1.29. On TDY's or Deployments with durations of 30 days or more determine if WS personnel will be deployed to allow the means to provide MPRL and recertification capability to deployed load crews. On TDY's where live munitions are to be fired/expended, regardless of length, determine whether or not WS participation is required.

16.1.30. Perform a self-inspection on WS, Weapons sections and Armament sections IAW Chapter 18. Maintain a copy of the inspection results until the next inspection.

16.1.31. WWM, with concurrence of the MXG/CC, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks.

16.1.32. Evaluates and certifies the LSC. The WWM may delegate this responsibility.

16.2. Weapons Standardization (WS). WS is organized under the wing weapons manager and is comprised of the superintendent, the LSC, academic instructor, and lead crews. An LSC may be formed for each MDS in multiple MDS units. One lead crew is normally formed, but additional crews can be formed as needed. Lead crews return to their respective squadron for contingencies, deployments, generations and exercises. WS does not need to be formed in organizations that do not load munitions requiring certification providing the requirements of the weapons task qualification program are met, to include academic, practical, and recurring training. In organizations such as this, the weapons function will be responsible for applicable weapons manager responsibilities and the weapons task qualification program.

16.2.1. The key to successful combat/test/training operations is trained load crews proficient at generating aircraft configured to support combat and contingency plans. Units will maintain at least the minimum number of authorized load crews fully certified (as specified on the UCML/TTML). Achieving this standard may require units to certify/qualify weapons personnel who may be assigned duties outside the weapons sections.

16.2.2. WS Superintendent Responsibilities. The superintendent is responsible to the wing weapons manager, and performs maintenance supervision duties outlined in Chapter 2 of this instruction. The superintendent develops and oversees the weapons standardization program, sets standards, develops local policies and procedures, and interprets all technical data and directives governing the weapons standardization program. The WS superintendent also:

16.2.2.1. Coordinates with the weapons section chiefs to schedule crews for initial training, certification, minimum proficiency requirement loading (MPRL), and quarterly evaluations (QE) training.

16.2.2.2. Coordinates with Maintenance Training and/or PS&D to ensure availability of training aircraft.

16.2.2.3. Manages WLT training munitions, components, and accessories by establishing a supply point with munitions (FK/FV) for conventional training munitions. Document and schedule discrepancies requiring repair on training munitions through munitions control.

16.2.2.4. Ensures load crew training munitions are maintained to the same standard as the parent munitions to include AFTO Form 244 or automated forms. Training munitions must represent the parent munitions item in configuration, body color and mechanical function. Those having discrepancies, which affect safety, reliability, or detract from load crew training, are not used. An AFTO Form 350 accompanies munitions and munitions components when they are turned in to the munitions element for repair.

16.2.2.4.1. Load crew training munitions and components are inspected on a 90-day interval by the WS or more frequently if mandated by commodity TOs.

16.2.2.5. Use the guidelines established in AFI 21-201 when submitting the annual forecast to ANG/LGMW.

16.2.2.6. Orders training munitions and munitions items to meet unit needs.

16.2.2.7. If sufficient training WS supply point munitions are not available to support training, coordinate use of assigned items from supply point for management flexibility.

16.2.2.8. Uses the weapons load crew management program (WLCMP), or equivalent program, to track load crew certification and qualification status. Provide printed products to weapons section chiefs on an as required basis.

16.2.2.9. Upon notification of a deployment or an increased state of alert, takes appropriate action to certify load crews on support munitions if required.

16.2.2.10. Maintains a copy of all Air Force loading TOs for assigned MDS aircraft. Training and test units need only maintain checklists for munitions to support weapons load crew training required to sustain daily flying operations and for munitions undergoing test and evaluation.

16.2.2.11. Coordinates with the PS&D to ensure WLT aircraft are properly configured and safe for use.

16.2.2.12. Develops time standards for integrated loads.

16.2.2.13. Ensures all load crews are qualified to load and unload internal gun system ammunition (including partial loads at WWM's discretion) and preloaded chaff/flare modules on assigned aircraft.

16.2.2.14. Ensures load crews demonstrate proficiency on all capable aircraft racks and stations prior to certification on that munition. For conventional munitions capable of multiple carriage, both aircraft parent station and multiple carriage loading are required.

16.2.2.15. Ensures load crews are proficient at performing complete munitions preparation inspections (including fuze inspection/installation and wiring) IAW MDS-33-series TO procedures and appropriate functional checks in conjunction with loading operations. Perform this training during initial training and certification. Incorporate this requirement into the training schedule to be performed at least quarterly.

16.2.2.16. Inspects WS CTKs and equipment annually. Ensures CTKs, tool storage area and test equipment are maintained IAW Chapter 13.

16.2.2.17. Ensure requirements stated in section 18.2 in regards to the Special Certification Roster are adhered to.

16.2.2.18. Ensure requirements stated in section 13.8 in regards to lost tools are adhered to.

16.2.2.19. Maintains an automated system to depict load crew status. As a minimum, the load crew status system reflects the formed crews by number and crew member position, by individual, the next Minimum Proficiency Requirement Loading (MPRL) due date for each munitions, quarterly evaluation due date, preload due date (if applicable), competent familiarity loading (CFL) due date for each type of munitions, and training due date for each weapons task qualification.

16.2.2.20. Ensures individual tool kits are set up for each lead crew assigned. These CTKs may be stored in WS or the respective squadron.

16.3. Loading Standardization Crew (LSC). The LSC works for the WS superintendent and conducts the weapons standardization and evaluation program. The wing weapons manager,

designated individual, and/or WS superintendent evaluate and certify the LSC according to criteria in this section. As a minimum the LSC chief will be a 2W171 AFSC. The LSC trains, evaluates, and certifies the lead crews and load crews in safe and reliable munitions loading procedures. Multiple MDS Composite Wings may have an LSC for each MDS. The LSC:

16.3.1. Conducts and monitors training to ensure personnel maintain a high degree of proficiency in loading unit-committed munitions.

16.3.2. Monitors certification and recurring training documents for accuracy and to ensure all load crew members complete required proficiency and academic training. The LSC takes decertification action if recurring requirements are not met.

16.3.3. Ensures all load crew training is documented.

16.3.4. Reviews and coordinates on all loading related AFTO Form 22's with an entry and signature block in PART VII of the AFTO 22 indicating recommended approval.

16.3.5. Develops and coordinates monthly load training aircraft requirements with the PS&D.

16.3.6. Monitors and evaluates lead crews in the performance of their duties.

16.3.7. Provides non-load crew personnel initial and recurring weapons task qualification training, including practical training on:

16.3.7.1. Weapons system safety devices to include proper use, identification, installation and removal.

16.3.7.2. Munitions item safety requirements.

16.3.7.3. Location of weapons system explosive items used to jettison and release external stores.

16.3.7.4. Stray voltage checks, as required.

16.3.7.5. Location and position of cockpit armament system switches.

16.3.8. Performs spot inspections and evaluations of flightline munitions/explosive handling, loading and postloading operations. May augment wing inspection/evaluation teams during local exercises to assess munitions loading capabilities and activities.

16.3.9. Performs quarterly evaluations on all certified load crews. Lead crew members may assist. (see paragraph 16.1.22.)

16.4. Academic Instructor. A qualified 2W1X1 is assigned to administer the weapons academic training program. The academic instructor may assist in conducting practical training, and is not considered a maintenance instructor. A qualified weapons instructor conducts initial and recurring weapons academic training for all wing 2W1X1 personnel. Academic instructor may be a member of the LSC.

16.5. Lead Crews. If utilized, are assigned to the WS and assist the LSC in training, evaluating and certifying unit load crews in safe and reliable munitions loading procedures. They document, initiate and maintain the data base to reflect qualification, certification status and history of assigned load crew members. Ensure all load crew members complete required proficiency/academic training and take decertification action when recurring requirements are not met. Perform spot inspections and evaluations of flightline munitions/explosive handling and loading operations when not directly involved in WS training functions. Lead crews may

perform flightline evaluations in addition to their normal load crew duties. These evaluations may be used to satisfy load crew MPRL IAW this chapter.

16.5.1. Initiate and maintain **AF Forms 2435, Load Training and Certification Document**, or locally devised form that covers everything on the 2435, for certified crew members.

16.6. Training Facilities/Aircraft.

16.6.1. Practical training is conducted in a facility dedicated to load crew training. The facility is of sufficient size to accommodate required aircraft, training munitions and associated support equipment. It is recommended that aircraft have dedicated load-training facilities, however, where not practical, inside facilities should be provided to the maximum extent possible during periods of extreme inclement weather. Adequate office space and classroom with appropriate heating and cooling are required in the academic and practical training area.

16.6.2. Aircraft will have a fully configured and operational (electrical and mechanical) weapons system for load training purposes. If a permanent Armament Systems Trainer (AST) is assigned, it also will have a fully configured and operational weapons system. In addition, PS&D develops a schedule for periodic maintenance to weapons system components.

16.7. Academic Training. All 2W1X1's assigned to a wing regardless of duty position, and non 2W1 personnel who maintain specific weapons task qualification, are required to complete initial and recurring academic training. Complete initial academic training before the start of any practical training. Administered annually, recurring academic training may also be part of training and re-certification for failed loads. Initial and recurring course outlines may be combined. Coordinate training requirements and course control documents annually through the wing weapons safety office or the safety officer and the Training Management. The wing weapons manager is the final approval authority for course control documents.

16.7.1. Course control documents are tailored to unit and contingency needs and, as a minimum, cover the following items:

16.7.1.1. Publications, applicable weapons related OIs.

16.7.1.2. Safety (ground and explosive) and security.

16.7.1.3. Aircraft, munitions, AGE, SE, TMDE, and munitions trailer familiarization.

16.7.1.4. Testers, handling equipment and special tools.

16.7.1.5. Operations in revetments/protective aircraft shelters. (as required).

16.7.1.6. Weapons storage and security system vaults (tasked units).

16.7.1.7. Applicable command unique training requirements, in ANG 36-2201 supplements.

16.7.1.8. Hazards of SGO operations, especially with CSO.

16.7.2. Load crew academic training may fulfill the requirements for explosive safety training. AFMAN 91-201.

16.8. Practical Training. Practical training starts when initial academic training is complete. The LSC or lead crews administer practical training to each load crew member on required munitions and aircraft. They ensure practical training duplicates operational conditions to the maximum extent possible and stress requirements such as safety wiring empty breaches. Load crew members are trained on loading and unloading procedures prior to qualification or

certification on munitions.

16.8.1. If a specific type or model of munition has been requisitioned but not received or not available, any type or model of the basic item may be used for load crew training until receipt of the munition. LSC/lead crew personnel will teach the major differences between training and WRM munitions. After initial training on applicable items within the MFG, treat the MFG as a single item and document certification using one line entry in block 7 of the AF Form 2435, or locally devised form.

16.8.2. Load crews must be familiar with munitions serviceability criteria (to include wiring and/or fuzing, if applicable) and munitions tie-down procedures in TO 11-1-38, *Non-nuclear Munitions, Positioning and Tie-Down Procedures*. Blanket rejection of training munitions during load training is not authorized, and munitions may not be rejected solely because they are inert.

16.8.3. Initial support munitions (SM) training is accomplished concurrent with initial primary munitions (PM) training and certification. When a new PM or SM is designated on the UCML/TTML, crews are certified or competent familiarity loading (CFL) trained within 90 days after receipt of training items.

16.8.4. Load crew members will be familiar with the operation of AGE and SE which may be used during loading operations, even if the items are not used on a routine basis. Training on this type of equipment is conducted during initial training and certification. Training is documented in either WLCMP, MIS, or automated product.

16.8.5. Ensures supervisory post-load inspections of explosive loaded aircraft are accomplished. Supervisors (expeditors, shift supervisors, flight chiefs, etc.) performing such inspections require familiarity training by WS.

16.9. Load Crew Composition. Load crews consist of two or three persons as follows:

16.9.1. Two member crews: HH-60, C-5, C-130, C-141, and KC-135

16.9.2. Three member crews: A/OA-10, F-15, F-16

16.10. Task Assignment List (TAL). A TAL is a functional grouping of procedural steps from applicable -16/-33 series technical orders, by crew position, to be accomplished in sequence by each crew member during a loading operation. TALs are used during training for all loading operations except those for which job oriented procedures have been published. TALs will include single munitions loading procedures and aircraft armament electrical functional checks (including gun and chaff/flare loading), and when required, integrated munitions loading procedures. Their purpose is to standardize procedures and facilitate the training of unit load crews. TALs are not replacements for TO procedures. Separate TALs will be developed for weapons qualification tasks performed by non-2W1X1 personnel. MPRLs and quarterly evaluations are not considered training operations. The following guidelines establish minimum responsibilities of individual crew members:

16.10.1. Two member load crews:

16.10.1.1. Crew member number one is the load crew chief and is in charge of the loading operation, performs functional checks and attaches stores to the pylon/rack.

16.10.1.2. Crew member number two assists the number one person in performing the

pylon/rack preparation and installation of stores to vehicle.

16.10.2. Three member load crews:

16.10.2.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions cockpit switches during functional checks and attaches stores to the pylon/rack.

16.10.2.2. Crew member number two performs the pylon/rack preparation and operates test equipment during functional checks.

16.10.2.3. Crew member number three performs munitions preparation and operates the bomb lift truck during loading operations.

16.11. Weapons Load Training Basic Terms.

16.11.1. All-Up-Round (AUR). A munitions item which is shipped and stored in a complete, ready to use configuration. An AUR munition requires no pre-assembly.

16.11.2. All-Up-Round Container (AURC). A container used to ship, store, and handle AUR munitions. Some AURCs are designed to load munitions directly from them onto an aircraft.

16.11.3. Competent Familiarity Loading (CFL). The loading of a munition which requires only a satisfactory fundamental knowledge of the loading operation. The performance of CFLs only set a basic level of proficiency in order to make future certification easier. Evaluation criteria in this chapter does not apply to CFLs. CFLs are accomplished annually and are not a substitution for certification.

16.11.4. Integrated Load. The loading of two or more different types of munitions in an authorized configuration during a single operation.

16.11.5. Limited Use Munition (LM). A munition used by a unit for firepower demonstrations, test, aircrew training or like operations, but which a unit would normally not use in a war or a contingency. LMs may be designated on the UCML/TTML. WWM determines the number of crews to be certified.

16.11.6. Munitions Family Group (MFG). A designated grouping of munitions based on similarity of either physical characteristics or procedural commonality. Certification on a MFG is accomplished during initial training on each tasked munition within the MFG (subject to availability of training munitions) then maintained through the MPRL process.

16.11.7. Postload Checks. Power-on checks and/or tasks required by technical data prior to declaring munitions-loaded on aircraft mission ready.

16.11.8. Primary Munition (PM). Munitions which will be the primary weapons used by the unit to execute test/training or their DOC war plan and are designated on the UCML/TTML.

16.11.9. Standard Conventional Load (SCL). The designation, which includes the number, type and configuration of authorized munitions, required for a specific mission and aircraft load.

16.11.10. Support Munition (SM). A munition normally used in support of contingency plans or directives and is designated on the UCML/TTML. WWM determines the number of crews to be certified.

16.12. Load Crew Certification/Decertification.

16.12.1. Certification. These guidelines are used to establish the loading standardization and evaluation program. The LSC will establish and manage a program to train, certify and maintain proficiency for each crew on the munitions designated by the UCML/TTML or WWM for SMs/LMs. Certification and training requirements for load crews are based on the following:

16.12.1.1. Except the LSC and lead crews, load crew members are not certified on more than 10 MFGs. Dual position or dual MDS (LSC only) certification of load crew members is authorized; however, they may not be certified on more than 10 MFGs. Personnel certified on two separate MDS aircraft alternate quarterly requirements between the two tasked aircraft. Proficiency requirements are accomplished on both aircraft IAW this chapter. Test wing personnel may be certified on more than 10 MFGs and dual MDS provided all other requirements for load certification, qualification and evaluations are complied with and authorized by the WWM.

16.12.1.2. LSC, lead crews, and load crews are certified on all PMs. The LSC and lead crews are certified on all SMs to provide the cadre for future certification of unit load crews. The LSC is certified (or qualified for items so identified by unit tasking) on unit LMs. The WWM determines the number of additional load crews trained and certified on support and limited use munitions.

16.12.1.3. For initial certification a minimum of two certifying officials are required to evaluate three member load crews. (if only one crew member is not certified, then, only one certifying official is required) For MPRLs a minimum of one certifying official is required to evaluate three member load crews. QEs require a minimum of two certifying officials (one must be a member of the LSC).

16.12.1.4. Load crew member certification is valid worldwide with gaining WWMs concurrence. Reassignment does not necessarily require recertification by the gaining unit if the individual is certified on the same munitions, aircraft, and load crew position. Units develop an OI to ensure that WLCMP or equivalent data is provided to the individual prior reassignment. Losing units, therefore, provide gaining units with the AF Forms 2435 or equivalent.

16.12.1.5. All certified load crews perform Minimum Proficiency Requirement Loading (MPRL) monitored by designated lead crew members or LSC members. The LSC monitors lead crew proficiency loads. When the LSC performs proficiency loadings, the loads are not required to be monitored. Post-load inspections do not meet these proficiency requirements.

16.12.1.6. Personnel are certified before performing loading of conventional munitions, unless loading under the direct supervision of a minimum of two certifying officials.

16.12.2. Decertify and disqualify individual load crew members if they:

16.12.2.1. Fail an evaluation established by evaluation criteria in this chapter.

16.12.2.2. Fail to complete a required evaluation (QE, MPRL, etc.). If a load crew member is on temporary duty (TDY), on emergency leave, incapacitated, or involved in an unannounced local or higher headquarters exercise/contingency operation, or because of inclement weather, do not decertify or disqualify the member (or the load crew) providing the current quarter's MPRL and evaluation requirements (plus all past-due evaluations) are completed within 60 days of returning to duty. **NOTE:** The WWM may consider the provisions of this paragraph for ordinary leave (i.e. member has approved leave for 45 days).

16.12.2.3. Fail to accomplish required recurring academic training. Individuals are decertified and disqualified on all UCML/TTML and qualification items until academic and practical training are completed. **NOTE:** If a load crew member is on temporary duty (TDY), on emergency leave, incapacitated, or involved in an unannounced local or higher headquarters exercise/contingency operation, or because of inclement weather, do not decertify or disqualify the member (or the load crew) providing the current quarter's MPRL and evaluation requirements (plus all past-due evaluations) are completed within 60 days of returning to duty. **NOTE:** The WWM may consider the provisions of this paragraph for ordinary leave (i.e. member has approved leave for 45 days).

16.12.3. AGM-65 tasked units will load train using both the LAU-88 and LAU-117 launchers (accomplish quarterly loading requirements by alternating launchers e.g. load the LAU-117 one quarter and the LAU-88 the next). WS will provide annual familiarization training on all procedures, and equipment required to accomplish single, preload, and unbalanced configurations. (**NOTE:** Units may possess one or two LAU-88 launchers for WLT. These WLT assets are provided to units for training in support of deployed locations/taskings.)

16.12.4. Units that have the AGM-88 as a PM/SM will demonstrate the ability to load the LAU-118 using both the single store and preload methods.

16.12.5. F-15 AIM-120 loading will be alternated between the LAU-128 and LAU-106 launcher.

16.12.6. Personnel will not be certified on more than two types of aircraft, except those assigned to aircraft test programs.

16.12.7. Annually perform a SCL while wearing the ground crew chemical-defense ensemble using applicable 33-1-2 procedures, if AEF tasked.

16.12.8. For contingency operations or deployed locations an SLC should be and is normally deployed to perform WS functions. If an SLC is not deployed, the senior 2W1X1 weapons loading person (with WWM coordination) on location will have WS authority. **EXAMPLE:** A new munition or load configuration is required to support operations and crews need to be trained on location (provided Seek Eagle approval has been granted and verified technical data/procedures are available).

16.13. Load Configurations. All munitions loads will be authorized load configurations IAW the dash one flight manual.

16.13.1. For initial training a full complement of munitions (if available) will be loaded a minimum of once on a rotary launcher, TER, BRA, CBM, etc. to provide the crew experience loading a full load.

16.13.2. Sufficient weapons will be loaded during each evaluation to ensure that the load crew demonstrates proficiency on loading/unloading each tasked configuration (adjacent stations, upper/lower stations, shoulder/centerline stations, etc.).

16.14. Minimum Proficiency Requirement Loading (MPRL). One half of the munitions family groups (MFG) for which an individual is certified will be loaded quarterly to maintain certification and provide evaluation of load crew proficiency. (See Table 16.2. for an example schedule)

16.14.1. For those munitions that no training assets exist (CBU-97, CBU-105, M129, etc.)

difference training will be provided prior to initial certification and during annual refresher academics training.

16.14.2. Load crews in air defense/air superiority units perform proficiency loads quarterly using all committed munitions.

Table 16.2. Example of a MPRL Schedule.

1st Quarter (Jan/Feb/Mar) QE = AIM 9	2nd Quarter (Apr/May/Jun) QE = CBU89	3rd Quarter (Jul/Aug/Sep) QE = AGM65	4th Quarter (Oct/Nov/Dec) QE = MK84HD	Certified MFGs: AIM 9/7/120 MK 82/84/LD/HD CBU 87/89/97/103 AGM 65 GBU 10/12/24
Load 1 = QE Load 2 = MRPL (82HD/AGM 65) Load 3 = MPRL CBU 87	Load 1 = QE Load 2 = MPRL (AIM120/GBU 10)	Load 1 = QE Load 2 = MPRL Load 3 = MPRL CBU87	Load 1 = QE Load 2 = MRPL (AIM9/GBU12)	

16.15. Load Crew Quarterly Evaluations. The LSC evaluates each load crew once a quarter on one of the unit PMs (all unit PMs will be used on a rotating basis). Load crew integrity will be maintained to the maximum extent possible. Decertify load crews failing to accomplish quarterly evaluations on all munitions within a family group unless exempted IAW provisions in this chapter. Quarterly evaluations are not required for lead crews.

16.15.1. Evaluation Criteria. All certified load crews perform proficiency loads monitored by a lead crew or the LSC. The LSC monitors lead crew proficiency loads. The WWM, designated individual, or WS superintendent may monitor LSC proficiency loads. Post-load inspections do not meet these proficiency requirements. The following criteria apply to initial certification, MPRLs and quarterly evaluations:

16.15.1.1. Exceeded time standard results in a failed rating for the load crew chief. Time standards will be locally established for load tasks in chemical warfare defense ensemble.

16.15.1.2. A safety or reliability error results in a failed rating for the individual. A failure in this category due to a single sub-task error need not result in complete retraining/recertification for the loading task. At the discretion of the evaluator, sub-task retraining or thorough critique may be used to satisfy retraining/recertification requirements. The decertification and subsequent recertification action will be documented.

16.15.1.2.1. Safety Error: A violation of safety publications, technical order warnings, etc., or an unsafe act that could reasonably lead to personal injury or death.

16.15.1.2.2. Reliability Error: A violation of technical order requirements that could reasonably

lead to damage/premature failure of equipment or prevent safe reliable operation of a weapons system or release of a weapon.

16.15.1.3. A demonstrated lack of technical proficiency by an individual load crew member can result in a failed rating. If the time standard is exceeded for this reason, the load crew chief does not need to be decertified.

16.15.1.4. For integrated loads, the evaluator may elect decertification on any one or all munitions loaded. When the same rating is not applied to all munitions loaded during an integrated load, the load crew records will be annotated accordingly.

16.15.1.5. Intervention by an evaluator during loading to prevent injury to personnel or damage to equipment will result in a failed rating.

16.15.1.6. MPRL credit may be given to load crews or personnel performing loading operations on the flightline. Loads must be evaluated, start to finish and must satisfy MPRL requirements. LSCs may evaluate loading operations conducted during deployments, exercises, or contingencies as QEs at the discretion of the WWM. The required number of evaluators, equipment and all other requirements must be met to receive credit for these type evaluations.

16.15.1.7. More than three errors per crew member results in a failed rating for the individual.

16.16. Documenting Load Crew Training. Manage load crew certification and qualification, quarterly evaluations, MPRLs and CFLs by means of the WLCMP or equivalent.

16.16.1. The LSC keeps load crew records. Include the following documents as a minimum: AF Form 2435 (or equivalent) for each crew member and AF Form 2419 recording the most current quarterly evaluation, 2419s will be maintained in the data base for all loads accomplished within the current fiscal year.

16.16.2. Route AF Form 2419, **Routing and Review of Quality Control Reports**, after quarterly evaluations to the weapons section chief, maintenance supervision, WWM, and LSC.

16.16.3. Send printouts from the Load Crew Management database with the crew to TDY locations if loading tasks are to be performed. The following statement is added after the last entry on each product: "AF Form 2435 reviewed; the member is certified/qualified on the items listed on this product." This statement is followed by the signature and date of a WS certifying official.

16.16.4. Academic and qualification training conducted by the WS is normally documented in (MIS), however the load crew management program may be used for this purpose.

16.16.4.1. Complete AF Form 2435 as follows:

16.16.4.1.1. Blocks 1 through 6, self-explanatory.

16.16.4.1.2. Block 7, each applicable munition from the UCML/TTML is listed on a separate line. If the UCML contains more than one item from MFG, the MFG is entered. MFGs are listed as a single entry using the primary tasked item of the group in the title, for example MK-82 MFG is entered when the MK-82 is the primary tasked item from its group. Separate entries are made for CFLs, and may be used for post-load checks.

16.16.4.1.3. Block 8, dates are entered upon certification and CFLs.

16.16.4.1.4. Blocks 9 and 10, self-explanatory.

16.16.4.1.5. Block 11, Signature of certifying officials are entered only upon certification after completion of blocks 7 and 8.

16.16.4.1.6. Block 12, list each individual munition separately. MFGs are not used. Enter the date the MPRL, CFL, or quarterly evaluation was accomplished in the applicable month column. Enter one of the following codes in the month column if the required loads are not completed: temporary duty (TD)(T), leave (LV)(L), incapacitated (ED)(D), or exercises (EX)(X), inclement weather (WX)(W). The letter "E" is placed after the date for evaluated loads regardless of rating.

16.17. Transient Aircraft Responsibilities. Arming, de-arming, and munitions loading/unloading will only be accomplished on transient aircraft to facilitate required maintenance actions. In such cases, these operations on transient aircraft may be performed by any weapons load crew certified/qualified on the munition and aircraft. The MXG/CC may direct the LSC or a lead crew to arm, de-arm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data and support equipment is available. In such cases, the aircrew will be available for consultations on aircraft to verify flight worthiness of load configuration, and to perform cockpit portions of required functional/stray voltage checks. If these cannot be met, request help from owning unit(s)/higher headquarters. OIs must be developed to control impulse cartridges removed from transient aircraft.

16.18. Not Used.

16.19. Weapons Task Qualification. A weapons task qualification is a munitions related task that does not require certification. Personnel receive initial and annual recurring academic and practical training for these tasks. Recurring practical training may be conducted during normal flightline operations. Training is provided, documented and tracked by the WS.

16.19.1. Checklist Qualification: Indicates that the person with the checklist is trained, knowledgeable and in-charge of the overall operation or task.

16.20. Other Tasks.

16.20.1. Two or more qualified personnel in AFSC 2W1X1 may perform the following tasks:

16.20.1.1. Practice Bombs: load and unload BDU-33, BDU-48 and MK-106.

16.20.1.2. Load and unload ammunition in internal and external gun systems (the GAU-8 requires three people).

16.20.1.3. Load and unload single 2.75 rockets.

16.20.2. Two or more qualified personnel in any aircraft maintenance AFSC may perform the following tasks:

16.20.2.1. Install and remove impulse cartridges if the task is not accomplished as a part of a loading operation.

16.20.2.2. Install/remove pre-loaded SUU-25 dispensers.

16.20.2.3. Pyrotechnics: Load/unload on helicopter.

16.20.2.4. Install and remove chaff and flare magazines and other defensive countermeasures as required.

16.20.2.5. Perform portions of the conventional loading checklist that pertain to delayed-flight

or alert, and IPL/safing procedures.

16.20.2.6. Munitions/Missile Isolation: perform procedures to facilitate other maintenance on non-nuclear loaded aircraft only.

16.20.2.7. Install and remove captive AIM-9 missiles, Acceleration Monitor Assemblies (AMA) and Air Combat Maneuvering Instrumentation (ACMI) pods. Academics are not required for AMA and ACMI pods. (Minimum crew size per TO directives). AMA and ACMI qualification training only required initial training and will be tracked in MIS or AF Form 797.

16.20.2.8. Loading and unloading ammunition in the GAU-2 and M240 guns.

16.20.2.8.1. Install/remove helicopter gun systems (GAU-2, M240,).

16.20.3. A weapons load crew chief does not require qualification to perform tasks on which they are certified to load in respect to parent munitions. Other load crew members must be qualified to perform any portion of these tasks for which they have not been certified. **NOTE:** To clarify, the load crew chief may perform in any crew member position. The two and three members can only perform those positions for which they are certified or qualified in. The load crew chief may assist or direct a crew member to assist another crew member in the performance of a task in order to enhance the continuity of the loading operation.

16.21. Munitions Load Time Standards. All munitions listed in a single block comprise a MFG for the respective aircraft mission type. The load time standards apply to all operational users of the munitions or aircraft listed and are the minimum proficiency requirements for weapons load crews. Units may establish more restrictive standards for local use. All items require certification in accordance with this chapter, except as noted.

16.21.1. The standard load times, from the MFG table, are standard load times for initial and recurring "WLT" training and evaluations for the respective single store (including full munitions preparation) and an applicable aircraft station functional check and installation of impulse cartridges, if required. An additional 10 minutes is allowed for each added aircraft station check on fighter aircraft. An additional 7 minutes is allowed for each like store added to fighter aircraft loads. Load times are additive when more than one type of munition is loaded on fighter aircraft. For example, if an F-16 to be loaded with two AIM-9s and a MK-82, the load crew is allowed 30 minutes for the first AIM-9, 7 minutes for the second AIM-9 plus 10 minutes for the additional station functional check, and 35 minutes for the MK-82, for a total of 82 minutes. Loads may be accomplished without full munitions preparations or functional checks, however, more restrictive time standards must be developed. Units should develop optimum time standards for integrated loads.

16.21.2. Unless otherwise noted in the table, the LSC will determine and set load time standards for qualification items, for integrated loads, and for loads performed wearing CWDE.

Table 16.3. Fighter Aircraft Munitions Family Group and Load Time Standards.

FAMILY GROUP	A/OA-10	F-15	F-16	REMARKS
AIM-7, AIM-9, AIM-120	0/30/0	35/30/35	35/30/35	
AGM-65	35	35	35	NOTE 1, 2

AGM-88			35	
AGM-130		45		NOTE 1,6
B-61		60	60	NOTE 3,
CBU-87/89/97/103/104/105	35	35	35	
GBU-10/12/24	35/35/0	35/35/35	35/35/35	NOTE 1
GBU-15/EGBU-15		45		NOTE 1,6
GBU-27		35	35	NOTE 1
GBU-28		45		NOTE 1
M129 MK-82/84 Hi or Low Drag	35	35	35	NOTE 4
GBU-31/32		35	35	
AGM-154		35	35	NOTE 1
QUALIFICATIONS				
ALE-50			20	NOTE 5
SUU-25	30		30	
CHAFF/FLARES	20	10	10	NOTE 5
2.75" ROCKETS	35		35	
20MM/30MM	35	30	30	

NOTE: MFGs and times applicable only if listed on UCML/TTML.

NOTES:

1. Add 15 minutes for each additional store or LAU-117.
2. Time is for one LAU-117. The time for loading one preloaded LAU-88 is 45 minutes; two LAU-88s, 60 minutes; single missile out of container, 35 minutes; for a single missile that must be transferred out of the container, 50 minutes; for three missiles out of the container, 60 minutes; for three missiles in their containers, 90 minutes.
3. Includes a short flight circuit test (FCT), such as F-16, 75060/W-11; or F-15, A/E24T-199 check. When a long FCT is to be included in a loading operation, add the time standard listed in the applicable dash 6 tech order to the time standard.
4. Add 5 minutes for each fuze extender used.

5. Time is for one module, magazine or ejector channel. Add 5 minutes per each additional module, magazine or ejector channel.

6. Add 15 minutes when accomplishing IR check.

16.22. Air Defense Guidance: (Includes NORAD and Home-land defense).

16.22.1. Units will develop Force Generation (FG) plans, and munition employment plans to cover local and deployed operations. A munition employment plan may be included as an annex to the FG plans.

16.22.2. The MXG/CC or designated representative will decide what partial loads may be accomplished on aircraft that are not fully loaded during FGs.

16.22.3. During FG exercises, all safety pin and missile safety devices may be removed. Prior to an aircraft being placed on alert, units located on civilian airports may leave safety pins and missile safety devices installed.

16.22.4. Generated aircraft, without aircrews assigned, do not require safety pins or missile safety devices to be removed. During FGs, qualified aircrews and ground crews may remove and install safety pins and missile safety devices.

16.22.5. Detached Alert Detachment (DAD) Training Responsibilities and Load Crew Requirements:

16.22.5.1. Certification and training of load crew members will be the same as home station standards.

16.22.5.2. The most qualified 2W171 at the DAD will be appointed as a member of the parent LSC/lead crew, and initially certified/evaluated as a load crew chief by the WWM or designated official. The WWM will determine the appropriate evaluation interval.

16.22.5.3. At least two of the assigned 2W1X1s will be certified as load crew chiefs.

16.22.5.4. Initial certification of other crew members may be accomplished by the parent unit LSC/lead team member. Crew members may be used to load in other positions at the discretion of the load crew chief. Dual certification is authorized.

16.22.5.5. Other personnel may be certified as augmentee loaders.

16.22.5.6. Load crew training and certification will be documented and routed to the parent unit LSC and returned to the DAD for filing.

16.22.5.7. Load crew members may accomplish captive missile inspections provided they are qualified to perform these inspections.

16.22.5.8. Alert aircraft launches and recoveries, to include arm/dearm of loaded munitions, may be performed by any task qualified maintenance personnel provided the following conditions are met.

16.22.5.8.1. Initial and annual academics.

16.22.5.8.2. Initial and annual qualification training using the applicable –100 checklist.

Chapter 17 NOT USED.

Chapter 18

SPECIAL PROGRAMS

18.1. Not used.

18.2. Special Certification Roster (SCR): The SCR is a valuable management tool that gives supervisors a clear and concise listing of the personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Maintenance requirements which have a definite potential for personnel injury or damage to equipment will be included in the SCR. Other tasks requiring special training or qualifications may be considered for SCR. The SCR is used to build personnel rosters for deployments, shift schedules, and assess workforce capability. The SCR will be reviewed and signed semi-annually by the appropriate maintenance supervision and workcenter supervisor to verify that all entries are current, accurate and task certifications have been completed. See table 18.1 for SCR requirements.

18.2.1. Maintenance Supervision recommends individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position through their chain of command. Seven-skill level personnel may be certified outside their primary AFSC only when specific CUT task qualification is documented in personnel training records. The MXG/CC approves individuals for inclusion on the SCR.

18.2.2. The MXG/CC can authorize selected 5-skill level personnel, in the rank of SrA or higher, for tasks normally requiring a 7-skill level requirement to facilitate the production effort. Waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission. File copies of approved waivers (letter, local form, AF Form 2426, or e-mail, etc) must be maintained by maintenance supervision or equivalent until the SCR is updated. Certified weapons load crew chiefs (load crew member position number 1) by virtue of their task certification and position serve as inspectors for weapons loading activities and do not require waiver. Contractor MAs will submit waiver requests through the QA chief, to the group commander for approval. **Exception:** 2W0X0 Certified Munitions Inspectors are exempt from these requirements. Inspectors are CFETP qualified and appointed by the munitions element supervisor or OIC IAW AFI 21-201 and TO 11A-1-10.

18.2.2.1. Exceptional Release/Conditional Release Waiver Policy. **NOTE:** If local conditions require assignment of other than maintenance officers or senior enlisted personnel to sign aircraft Exceptional Releases/Conditional Releases, the MXG/CC must request a waiver from ANG/LGMM. In accordance with provisions in TO 00-20-1, waiver requests must: (1) Fully justify need for the waiver; and (2) Identify actions being taken (or planned) to resolve the problem.

18.2.3. The MXG/CC or ANG/LGMM may add other mandatory critical tasks or inspections they deem necessary. Identify each task on the SCR by a specific course code.

18.2.4. SCR Documentation. Element and/or workcenter supervisors will review each individual's qualifications prior to recommending approval to perform SCR tasks through their chain of command. The AF Form 2426, **Training Request and Completion Notification**, or locally approved form is used to add or remove an individual to the SCR. Maintenance Supervision routes the recommendation to the QA Superintendent. The QA Superintendent reviews and verifies the request for currency, qualification and applicability and forwards to the

MXG/CC. Once approved by the MXG/CC, the individual is authorized to perform the tasks indicated. On approval, the Training Management function, loads the approved name into the automated tracking system. Element and/or workcenter supervisors retain their copy of nomination until they verify proper loading.

18.2.4.1. Maintenance supervision, element and workcenter supervisors may revoke certification at any time. They follow up those actions by deleting SCR certification.

18.2.5. The deployment OIC will ensure a current copy of the SCR is taken on all deployments.

Table 18.1. Mandatory Special Certification Roster (SCR) Items and Prerequisites.

Item	Mandatory SCR Item Titles	Prerequisites
1	All systems Red-X - (except egress, welding, munitions, etc.).	Maintenance officers and senior NCOs (7 skill level or higher) may clear "all systems" Red X conditions.
2	Engine Run Certifier.	The most qualified 7 or 9-level 2A6X1A/B, 2A5X1/2, 2A3X3X, holding the rank of MSgt or above. Minimum of one year engine run experience on the applicable MDS and engine (Type, Make, Series, Modification (TMSM)). High/low power.
3	Red X downgrade.	Maintenance officers and senior NCOs (7 skill level or higher) may downgrade Red X conditions.
4	All Systems IPI (except egress, welding, munitions, etc.).	Maintenance officers and senior NCOs (7 skill level or higher) may clear and perform "all systems" IPIs.
5	Exceptional Release (ER).	Maintenance officers and senior NCOs (7 skill level or higher) (See note 4).
6	Aircraft Intake/Exhaust Certifier.	7 and 9 level technicians with Air Force Specialty Codes 2A3X3, 2A5X1X, 2A5X2, and 2A6X1X. Successful completion of formal training and practical evaluation by a certifier.
7	Flexible/rigid Borescope Certifier.	7, and 9 level technicians with Air Force Specialty Codes 2A3X3, 2A5X1/2, and 2A6X1X.
8	Blade Blending Certifier.	Must have completed appropriate training. 7 and 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3X) Aircraft Maintenance (2A5X1X) and Helicopter Maintenance (2A5X2).

9	Red-X-by primary AFSC [PAFSC] and MDS (i.e. Clear Red X F-16 Electro/enviro, Clear Red X F-16 Avionics...).	NCOs (7 skill level or higher). Selected five-level personnel in the rank of SRA or higher may be authorized clear Red X conditions when the Squadron/flight commander requests the seven-skill level requirement be waived. (See notes 2 & 3).
10	IPI - by PAFSC and MDS (i.e. Sign IPI F-16 Electro/enviro, Sign IPI F-16 Avionics...).	NCOs (7 skill level or higher). Selected five-level personnel in the rank of SRA or higher may be authorized to perform IPIs when the Squadron/flight commander requests the seven-skill level requirement be waived. (See notes 2 & 3).
11	Red-X and/or IPI - limited (per each MDS), for tasks outside PAFSC through cross-utilization training or limited tasks within the PAFSC.	NCOs (7 skill level or higher) may be authorized to perform these tasks outside their primary AFSC only when specific Cross Utilization Training (CUT) task qualification is documented.
12	MICAP Approval.	MSgt or higher, minimum 7-level (See note 2).
13	NRTS and Serviceability Tag.	NCOs (7 skill level or higher). Selected five-level personnel in the rank of SRA or higher may be authorized to sign NRTS and serviceability tags when the Squadron/flight commander requests the seven-skill level requirement be waived. (See notes 1, 2 & 3).
14a	Engine run by MDS and engine type; low power.	SrA or higher, minimum 5-skill level with a minimum of 1-year time on weapon system. Successful completion of all 3 phases of the engine run certification program. Possess one of the following AFSCs 2A6X1A/B, 2A5X1/2, or 2A3X3X.
14b	Engine run by MDS and engine type; all power settings.	SrA or higher, minimum 5-skill level with a minimum of 1 year time on weapon system. Successful completion of all 3 phases of the engine run certification program. Possess one of the following AFSCs 2A6X1A/B, 2A5X1/2, or 2A3X3X.
15	Blade Blending.	5,7, and 9 level personnel with Air Force Specialty Codes 2A3X3, 2A5X1/2, and 2A6X1X.
16a	Hot Refuel supervisor "A" member.	Minimum 5 skill level. Individual will be a refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-

		level qualification and 1 year of flightline aircraft maintenance experience. Successfully complete all 3 phases of 'HOT' training.
16b	Hot Refuel crew "B" member.	Minimum 5 skill level. Refuel crew "B" member. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and 1 year of flightline aircraft maintenance experience. Successfully complete all 3 phases of 'HOT' training.
16c	Hot Refuel Fuels specialist 2F0X1, "C" member.	Minimum 5 - skill level in Air Force Specialty Code 2F0X1 and will be refuel task qualified. Successfully complete all 3 phases of 'HOT' training.
16d	Additional Hot Refuel crew "D" member.	Minimum 5 - skill level. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and have 1 year of flightline maintenance experience. Successfully complete all 3 phases of 'HOT' training.
16e	Hot Pad supervisor.	Individual will possess a 5-level or higher qualification in an aircraft maintenance AFSC and is hot/aircraft-to-aircraft refueling supervisor "A" member qualified. Successfully complete all 3 phases of 'HOT' training.
17	Test cell/noise suppression system (NSS) operator.	SSgt or higher, minimum 7-skill level and possess a 2A671A/B AFSC. Have a minimum of 6 months current experience on each applicable TMSM, unless previously qualified. Be authorized to clear Red X inspections for intake and exhausts. When the Squadron/flight commander has requested the seven-skill level requirement be waived, the MXG/CC may authorize senior airman possessing a 5-skill level and a minimum of 6 months experience on the applicable TMSM.
18	Engine inlet/exhaust inspections.	5, 7, and 9 level technicians with Air Force Specialty Codes 2A3X2, 2A3X3, 2A5X1/2, 2A6X1X and 2A6X6. Successful completion of appropriate training and practical evaluation by a certifier.
19	Flexible/rigid borescope inspections.	5, 7, and 9 level technicians with Air Force Specialty Codes 2A3X3, 2A5X1/2, and 2A6X1X.

20	Concurrent servicing operations-Chief Servicing Supervisor. (Large frame aircraft).	Minimum 5 - skill level with a minimum of 1 year weapon system experience.
21	Aircraft to aircraft ground refueling.	Minimum 5 - skill level with a minimum of 1 year weapon system experience.
22	Weight and Balance (W&B) Certified.	SSgt or higher 2AXXX or 2WXXX AFSC with a minimum of 1-year time on weapon system. Completed training requirements IAW 1-1B-50. Recommendation from the Weight and Balance Authority.
23a	Impoundment Authority.	Delegation of this authority will be limited. Chapter 11.
23b	Impoundment Release Authority.	Delegation of this authority will be limited (Level will be no lower than Maintenance Supervision).
24	APU Operation.	Successful completion of an aircraft APUs/GTCs one-time course.
25	Concurrent Servicing Supervisor (CSS) for SGO (A-10, F-15, F-16).	Minimum 7 skill level 2AXXX or 2WXXX AFSC with a minimum of one-year experience on the MDS.
26	WTQM-Weapons Task Qualification Training Manager.	Minimum 7 skill level 2A1X7, 2AXXX, or 2WXXX, generally a 2A1X7.
27	WTQC-Weapons Task Qualification Crew.	Minimum 5 skill level 2A1X7 or 2AXXX, generally a 2A1X7.
28	Hydrazine Response Team Member.	AFSC 2A6X4 or as appointed by the MXG/CC and must have task certification.

NOTES:

1--Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10, *General Instruction-Munitions Serviceability Procedures*).

2--Waived five-level personnel may perform the assigned certification only in their primary AFSC. The number of waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission.

3--For IPI Egress only, additional requirements contained in AFI 21-112, *Aircraft Egress Systems Maintenance*, must also be satisfied prior to certification.

4--If local conditions require assignment of other than maintenance officers and senior enlisted to sign aircraft Exceptional Releases/Conditional Releases, the MXG/CC must request a waiver

from ANG/LGM. In accordance with provisions in TO 00-20-1, waiver requests must: (1) Fully justify need for the waiver; and (2) Identify actions being taken (or planned) to resolve the problem.

18.3. Lead Technician. Units may choose to identify Lead Technicians. A Lead Tech is the flight AFSC subject matter expert and represents all personnel in that AFSC. Their use is especially important where multiple AFSCs are integrated into sections. Units supporting different aircraft types may find it beneficial to identify Lead Tech for each MDS. Serving as a Lead Tech is considered an additional duty, not a duty title or full-time job. Lead Techs:

18.3.1. Work with the Flight Chief /Element/workcenter supervisors to ensure personnel in the Lead Tech's AFSC receive proficiency training.

18.3.2. Serve as the Flight Chief's technical advisor for matters relating to their AFSC.

18.3.3. Work with the Flight Chief/Element/workcenter supervisor to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements.

18.3.4. Monitor repair processes to ensure safe, effective repair of unit assets.

18.3.5. Evaluate trends and indicators of troubleshooting effectiveness and 2LM efficiency. Unit RTOK "Re-test OK" components (RTOK) are costly and often indicate opportunities to improve troubleshooting or repair processes. If your unit has RTOK data available, review the data monthly for trends. Simple process improvements may result from emphasis on RTOK costs, more in-depth troubleshooting, or (circumstances permitting) reinstalling original line replaceable units (LRUs) when replacement LRUs drawn from supply don't fix the problem.

18.4. Aircraft Decontamination.

18.4.1. Units must master the Ability To Survive and Operate (ATSO) in a Nuclear, Biological, Chemical (NBC) environment. Based on wartime requirements, maintenance organizations will be capable of performing operational aircraft, vehicle, and support equipment decontamination at all locations. Procedures will be established IAW AFOSH Std 91-100, AFOSH Std 91-31, TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material contaminated with Radioactive Debris*, TO 00-20-1, Table 1-2. Decontamination Procedures and Documentation, TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*, TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*, and AFMAN 32-4017, AFMAN 32-4014, Vol. 4, *USAF Operations in a Chemical and Biological Warfare (CB) Environment Survive to Operate Procedures*.

18.4.2. Aircraft Decontamination Area. An area used to decontaminate returning aircraft that may have been contaminated by radiological fallout or liquid chemical/biological warfare agent. The area should be easily accessible, but should limit exposure to spreading contamination to other areas.

18.4.3. An aircraft suspected of being contaminated will be taxied immediately after landing, by the most direct route to the aircraft decontamination area. **CAUTION: To limit the spread of contamination, the prevailing winds and the location of drains should be considered as factors in determining selected isolation areas.**

18.4.3.1. A controlled area will be established around the aircraft, and deplaning aircrew members will be monitored and decontaminated, as necessary, under the supervision of the Bioenvironmental Engineer (BE).

18.5. Cannibalization Program.

18.5.1. Philosophy: Cannibalization (CANN) actions may be necessary when a not mission capable (NMC) condition will prevent the accomplishment of a mission and the required assets are not immediately available from supply. Prior to performing a CANN action, verify that the required component cannot be sourced from LRS or back shop assets within the allotted time. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. High risk CANNs should not be performed unless priority aircraft are involved, or lack of ready equipment will impede mission accomplishment. **NOTE:** Commanders should not necessarily view high CANN rates as a negative statistic that reflects poorly on the unit's capability or production effort. CANN rates accurately record the lack of asset availability to the field.

18.5.2. Definition: Cannibalization is the authorized removal of a specific assembly, subassembly, or part from one weapon system, system, support system, or equipment end item for installation on another end item to satisfy an existing supply requisition and to meet priority mission requirements with an obligation to replace the removed item. Weapon system, support systems, or equipment include: aircraft, missiles, drones, Unmanned Aerial Vehicles (UAV), uninstalled engines, uninstalled engine modules, aircrew and/or launch crew training devices, C-E equipment, AGE, TMDE, automatic test equipment, serviceable uninstalled ECM pods, and guns. The three most common CANNs are: aircraft to aircraft, engine to aircraft, and aircraft to readiness spares package (RSP) kits.

18.5.3. Authorization & Control: Commanders, superintendents, and supervisors will closely control CANN actions. Although immediate benefits can be realized, the process results in excess expenditures of maintenance resources and may degrade readiness by exposing serviceable equipment to extra handling, assembly, disassembly or removal and reinstallation, and follow-on operational checks.

18.5.4. MXG/CC will designate CANN authorities (CA). CA will be senior NCOs and officers. These personnel are normally production supervisors. Personnel permitted to authorize CANN actions must be kept to a minimum. Those who are authorized to approve CANNs will not further delegate their responsibility.

18.5.4.1. CA will inform MOC before executing on-equipment CANNs actions.

18.5.5. Aircraft that have been cannibalized extensively may be identified as "CANN aircraft." Aircraft that are designated as CANN aircraft will have an assigned manager, normally the crew chief. This manager will insure daily documentation actions (forms/tags/MIS) remain accurate and complete.

18.5.6. If an assembly is cannibalized to satisfy a condition caused by lack of bits and pieces (for example, washers, nuts, and bolts), the assembly is counted as a CANN and the bits and pieces are considered transfer actions. Bits and pieces removed from an end item (without removing the assembly) for installation on another end item are considered individual CANN actions. **NOTE:** An item will not be cannibalized solely to attain a mission capable rate or any other statistical yardstick.

18.5.7. When a required part cannot be delivered and installed on time, the CA may approve the CANN of parts before the initiation of CANN documentation (e.g. red ball maintenance). The CA will give this approval only after confirming the part is not readily available in supply,

launch trucks, forward supply points, or back shops. The CA will notify the LRS MICAP section to change the mark-for components in the document number. The CA will also ensure complete documentation is accomplished for each CANN action.

18.5.8. When time change items, serially controlled items, or other components with inspection requirements align to specific hourly, calendar, or events are considered for CANN, the CA will coordinate with the appropriate PS&D or EM to ensure adequate time remains on the item to justify the CANN and to ensure appropriate records are updated. If CANN occurs, the performing workcenter will update MIS and notify PS&D or EM.

18.5.9. Mission ready aircraft are end items. Installed engines are not end items; engines are considered line-replaceable units (LRU) just as a radar component, gun, seat, canopy, radio, multifunction display unit, etc. If a functional LRU is removed from one end item to put on another end item to fill a “hole” which was caused by a supply requisition, (the requisition could be against the LRU), then this will be considered a CANN.

18.5.10. Restrictions:

18.5.10.1. CANN actions involving parts from ABDR aircraft, Air Force Museum aircraft, Maintenance Training Devices (MTDs), Ground Instructional Training Aircraft (GITA) (possession purpose code TX), or Defense Reutilization and Marketing Office (DRMO) will not be accomplished without authorization from the Item Manager. If the part is approved for CANN, it will not be put into service until all necessary inspections (NDI, pressure checks, operational checks, TCTOs, etc) have been performed using specific guidance from the Item Manager to ensure proper serviceability. Parts will not be removed from static display/Air Force Museum aircraft except in accordance with AFI 84-103, *Museum System*. Aircraft in depot maintenance possessed by AFMC will not be cannibalized without first obtaining approval from the applicable AFMC single manager.

18.5.10.2. An aircraft that has been extensively cannibalized will not be launched on an overseas or cross-country sortie/mission on the first flight following CANN status without MXG/CC approval.

18.5.11. Documentation and Reporting:

18.5.11.1. Specific documentation procedures for CANNs are prescribed in TO 00-20-series. All CANNs will be properly recorded in the automated MIS. Aircraft recovering from CANN status will be carefully screened and all maintenance documentation thoroughly reviewed before being scheduled for a sortie/mission. The CA will ensure all operational checks have been completed and will determine if an operational or functional check flight is required in coordination with QA.

18.5.12. Supervisors will ensure personnel are trained to perform and document CANN actions.

18.6. Hangar Queen Aircraft.

18.6.1. General. The objective of this program is to ensure the entire fleet remains healthy and all possible management actions are carried out to ensure aircraft do not remain inoperative for extended periods.

18.6.2. Definitions:

18.6.2.1. A Hangar Queen is an aircraft that has not flown for extended period of time based on possessed calendar days in their assigned purpose code IAW AFI 21-103. An aircraft is released from hangar queen status after the first flight.

18.6.2.2. Hangar Queen aircraft are further defined by three categories:

18.6.2.2.1. Category 1--Aircraft that have not flown for 30 to 59 consecutive days.

18.6.2.2.2. Category 2--Aircraft that have not flown for 60 to 89 consecutive days.

18.6.2.2.3. Category 3--Aircraft that have not flown for 90 or more consecutive days.

18.6.3. When an aircraft becomes identified as a hangar queen, management must intensify their efforts to alleviate the condition as soon as possible (e.g. mission impact letters, ANG and item manager assistance, etc.).

18.6.3.1. When an aircraft becomes a category 1 Hangar Queen, establish a maintenance recovery plan that minimizes the time needed to get the aircraft airborne. Assign a Hangar Queen manager (typically the aircraft crew chief) to implement the plan. Forming a temporary dedicated recovery team is also an option. Ensure strict management, control, and documentation of all cannibalizations, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status to the MXG/CC and wing commander as required.

18.6.3.2. When an aircraft becomes a category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen. The MXG/CC, or designated representative must approve any further cannibalizations, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status at the scheduled wing standup. Report by tail number monthly to the ANG/LGM the estimated delivery dates for top down-time driver (AWP) parts. In addition, report by tail number monthly to AF/ILP. Cannibalizations will not be used to return the aircraft to flying status for the sole purpose of preventing hangar queen reporting. Reporting procedures are intended to provide higher level assistance to field units and will not be construed as a report card.

18.6.3.3. When an aircraft becomes a category 3 Hangar Queen, aircraft maintenance and supply status will be briefed at the scheduled wing standup. Report status to the ANG/LGM, AF/ILP and AF/ILM monthly.

18.6.4. Ensure applicable -6 and 00-20 series TO requirements and TCTOs are accomplished.

18.6.5. Inform the maintenance operations center (MOC) of any change in aircraft status.

18.6.6. In coordination with Quality Assurance (QA), determine the need for an FCF (if not otherwise required by the aircraft specific TO).

18.6.7. Perform a final review of all AFTO Form 781s initiated since the last flight prior to the first flight.

18.7. Not Used.

18.8. The Allied Command Europe (ACE) Aircraft Cross-Servicing (ACS) Program (AMPLE GAIN). This section translates ACE ACS general procedures found in NATO Standardization Agreement (STANAG) 3430, *Responsibilities for Aircraft Cross-Servicing*; STANAG 3812, *Responsibilities for Aircraft Cross-Servicing Ground Crew Training*; ACE Directives 80-53, *ACE Aircraft Cross-Servicing Program*; and ACE Directive 80-54, *Exercise*

Ample Gain and Ample Train Planning Directive. This section also represents the initial appearance of policy and procedures for implementing and managing the ACS program. The ACS program applies only to specifically tasked units identified in the SHAPE OPS-60.

18.8.1. ACS Program Objectives.

18.8.1.1. Promote standardized procedures at NATO bases on NATO tactical aircraft.

18.8.1.2. Training and exercising of host base support personnel and facilities in the area of aircraft recovery, physical protection, and NBC decontamination for aircraft and aircrews (if required).

18.8.1.3. Reconnaissance download and exploitation, intelligence debriefing, aircraft turnaround, re-tasking, mission planning, reconnaissance preparation, and re-launch.

18.8.1.4. Improving operational capability by promoting closer international relations.

18.8.1.5. Exercising the NATO command and control system.

18.8.2. Terms and Definitions. The following are standard terms used in the program:

18.8.2.1. Operational Aircraft Cross-Servicing Requirement (OACSR). An OACSR is defined as having an official commitment to cross-service another nation's aircraft or receive cross-servicing at a NATO host base. The SHAPE OPS-60 contains specific OACSR information. Participating units with OACSRs support the ACS program by establishing and maintaining proficiency in Stage A cross-servicing, as required.

18.8.2.2. Aircraft Cross-Servicing. Services performed on an aircraft by an organization other than that to which the aircraft is assigned, according to an established OACSR, and for which there may be a charge.

18.8.2.3. Host Base. This term refers to any US or NATO base that provides servicing to aircraft other than those permanently assigned. The host base provides facilities, maintenance, trained ground crews, fluids, fuels, etc., as needed to complete an ACS mission. Methods of payment and replacement are discussed in STANAG 3113.

18.8.2.4. Home Base. The US or NATO base to which an aircraft is permanently assigned. Home bases are not required to preposition equipment or supplies at host bases.

18.8.2.5. Stage A Cross-Servicing. The servicing of an aircraft on an aerodrome or ship, which enables the aircraft to be flown on another mission, without change to the weapons configuration. The servicing includes the installation and removal of weapon system safety devices, refueling, replenishment of fluids and gases, deceleration chutes, starting devices (cartridges) and ground handling. Tasked wings establish Stage A capability within operations squadrons.

18.8.2.6. Stage C cross servicing is the service provided to enable an aircraft to continue its mission to its final destination. The servicing includes marshalling, safe handling and making safe of weapons, chaff and flares. The aircrew of the visiting aircraft is responsible for Stage C servicing performed on the aircraft. This stage is not for the purpose of performing inspections, such as thru flights, but rather focusing on the proper safeing and ground servicing of an aircraft.

18.8.3. Program Management Responsibilities.

18.8.3.1. The MXG/CC designates a cross servicing manager (CSM) to administer day-to-day

program requirements. Other base agencies, as required, will be appointed as OCRs. These include the Operations Support Squadron (OSS), operations squadrons, aircraft maintenance squadrons, LRS, POL, and Maintenance training. As outlined in ACE Directive 80-53, there's no requirement to exercise Stage A capabilities during peacetime. However, in times of tension and crises, Stage A may be re-established IAW regional contingency operational plans. The maximum flexibility for air operations is achieved if Stage C for tactical aircraft is available. Stage C is the minimum level of ACS that is to be provided at an air base designated with an OACSR

18.8.3.2. The CSM ensures the wing develops and maintains the capability to perform ACS tasks and monitors and schedules ACS ground crew training. Additionally, the CSM fulfills their responsibilities by:

18.8.3.2.1. Facilitating US Customs and security checks for visiting NATO aircrew members, and informs appropriate headquarters DOTO of problems affecting base capabilities.

18.8.3.2.2. Ensuring the required support equipment and supplies (including deceleration chutes) are available for visiting ACS aircraft. The CSM should make it known to host bases if the base cannot repack or store deceleration chutes.

18.8.3.2.3. Coordinating parking areas for incoming aircraft and notifying home base ACS crews of parking locations.

18.8.3.2.4. Obtaining and distributing ACS guides and other technical data required to service tasked aircraft. The CSM must work at the lowest decision-making level possible within the ACS program by establishing good rapport with their NATO squadron or flight counterparts at host bases. Technical orders, ACS guides, and POCs are listed in SHAPE OPS-60.

18.8.3.2.5. Developing and sending an "EXAG Host Base Message" within 5 duty days after completion of Ample Gain missions. Message format is in ACE Directive 80-54. **NOTE:** Transmit ACS routine messages "US UNCLASSIFIED". Information on unit ACS capabilities or ACS deficiencies will be classified as "US CONFIDENTIAL". Consult with unit security managers for specific guidance.

18.8.3.2.6. Developing and issuing training certificates to present to NATO ground crews that receive training at the base. Maintenance Supervision and the ACS certifier will sign and date the certificate. Certificates are not required for familiarization training. US crews visiting NATO bases for training should request a certificate when they complete training. Keep certificates in the AF Form 623.

18.8.3.2.7. Operations squadrons/Aircraft maintenance squadrons (as directed by the GP/CC, based on ACS requirements) establish ACS Stage A and C crews. Stage A and C ACS crew normally consists of two aircraft crew chiefs. Squadron ACS crews are trained to perform Stage A on specific NATO aircraft for which the base has an OACSR. Each squadron should establish a minimum of two ACS crews. Any duty position qualified crew chief can train NATO personnel on Stage A and C for USAF aircraft.

18.8.3.2.8. The OSS OCR coordinates pilot and aircraft scheduling to exercise cross-servicing at the host bases listed in the SHAPE OPS-60. The OSS fulfills these responsibilities by:

18.8.3.2.8.1. Scheduling missions on normal working days. Do not schedule on host base national holidays. Reschedule and complete aborted or canceled missions within the calendar

quarter.

18.8.3.2.8.2. Transmitting a priority “EXAG Flight Confirmation” message to the host base 72 hours prior to scheduled take-off time. This allows the base to schedule ACS crew training or request another date; telephone confirmation is recommended. Host base POCs are listed in SHAPE OPS-60; message format is in ACE Directive 80-54.

18.8.3.2.8.3. Maintaining a continuity file or folder concerning host base problems previously encountered by US pilots and recommended solutions.

18.8.3.2.8.4. Insuring US pilots submit an “EXAG Mission Pilot Report” for each AG mission no later than 5 days after mission completion; message format is in ACE Directive 80-54.

18.8.3.2.8.5. Coordinating requirements with the ACS host base.

18.8.3.2.8.6. Designating AG qualifications for pilots. As a minimum:

18.8.3.2.8.6.1. Confirm NOTAM and national flight information prior to each mission. Include the phrase “Exercise Ample Gain” in the flight plan remarks section.

18.8.3.3. Pilots are encouraged to participate as exercise targets for national air defense systems. Include the phrase “Exercise Ample Gain Embellish Yes, Pass to Air Defense” in the flight plan remarks section. Pilots also:

18.8.3.3.1. The CSM ensures the pilot is briefed on requirements and what to expect at the host base.

18.8.3.3.2. Pass the AG mission number to the respective control agency upon initial radio contact.

18.8.3.3.3. Supervise host base ground crews and insure proper technical data is used.

18.8.3.3.4. Accomplish AG turn requirements prior to making “remain overnight” (RON) arrangements.

18.8.3.3.5. Carry US military ID card during all ACS missions.

18.8.3.3.6. Respond to the appropriate alarm conditions while visiting the base.

18.8.3.3.7. Report for re-tasking and keep the command post informed of current location and phone number.

18.8.3.3.8. Accept the aircraft from the host load crew once loading is complete.

18.8.3.4. The appropriate headquarters DOTO is the OPR for executing participation in the ACE ACS program. This responsibility is fulfilled by:

18.8.3.4.1. Determining OACSR tasking, including changes in basing and changes to aircraft and munitions. These changes are addressed to the appropriate NATO operational commander for approval.

18.8.3.4.2. Maintaining liaison with NATO member headquarters staffs and SHAPE concerning ACS actions, and monitoring their progress in implementing objectives.

18.8.3.4.3. Tasking units by transmitting semiannual message or amendments to the Combined Tasking Schedule to exercise ACS capability and forecast semiannual exercise Ample Train (EXAT) participation. EXATs are normally held in the early summer and fall of each calendar

year, and rotate between southern and central regions.

18.8.3.4.4. Obtaining and distributing ACS publications, as required.

18.8.3.4.5. Establishing ACS budget requirements in coordination with budget program element managers, and authorizing and monitoring expenditures.

18.8.3.4.6. Processing payment and collection vouchers (STANAG 3113 or other bilateral agreements), as required.

18.8.3.5. Headquarters USAFE/LGMM is the OPR for Stage A ACS. The headquarters USAFE/LGMM ACS program manager fulfills this responsibility by:

18.8.3.5.1. Resolving problems between wing CSM and NATO units. This includes sharing technical manuals and acquisition of supplies and equipment.

18.8.3.5.2. Coordinating and scheduling participating wing personnel for Exercise Ample Train (EXAT) events.

18.8.3.5.3. Monitoring day-to-day activities of units' participation in the ACS program.

18.8.3.5.4. Recommending OACSR changes based on manpower and force structure changes.

18.8.4. ACS Training Documentation and Certification. Consult STANAG 3812 for complete information and requirements, documentation guidance, and examples of training forms. Personnel may need to go TDY to a host base to complete familiarization training on another nation's aircraft. Certification of ACS personnel can take place during scheduled AG sorties. The CSMs ensures all opportunities for training are exploited by unit ACS and WS crews by requesting attendance at EXAT events. Schedule EXAT participation through headquarters USAFE DOT & LGM.

18.8.4.1. Document training as according to STANAG 3812.

18.8.4.2. Requested Training. Initial training is requested from the host base if no certifiers for the OACSR MDS are available. Request training by sending an official message to the host base, with information copies to the national headquarters of the coordinating nations and the Supreme Headquarters Allied Powers in Europe (SHAPE). Samples are provided in Annex B to ACE Directive 80-54. At the completion or cancellation of training, send a message to all of the identified addressees.

18.8.4.2.1. Initial Training. Initial training normally follows a session dedicated to familiarization on a newly tasked aircraft. Either ACS personnel from the host nation or certifiers from the US home base provide initial training at either the host or the home base. The nation owning the aircraft determines the duration (normally three business days) and content of initial training. Use established technical orders to conduct all training on US aircraft.

18.8.4.2.2. Proficiency Training. Once a cross-servicing technician is certified (see initial training), initiate proficiency training no later than the end of the 6th calendar month following the month of certification. The certifier determines the scope of proficiency training. Certification is valid for 180 days.

18.8.4.2.3. Revalidation Training. Revalidation training is conducted with an individual whose training or proficiency has lapsed. Revalidation training is conducted under direct supervision of authorized certifying officials.

18.8.4.2.4. Recertification Training. Stage A and C certifiers for non-US aircraft must receive annual recertification from the home base certifiers. Technicians are qualified to train and certify NATO personnel based on duty position and task qualification.

18.8.4.2.4.1. Aircraft Declared Identical for ACS. ACS crews certified on aircraft declared “identical” do not need to recertify if their home base owns the MDS. The SHAPE OPS-60 lists identical aircraft agreements. Consult STANAG 7028 for details.

18.8.5. Hosting ACS.

18.8.5.1. Training. Wings perform host base duties for ACS ground crew familiarization training when requested by headquarters USAFE DOT/LGM. This training is for NATO nations and is conducted on the assigned US aircraft. Occasionally, NATO personnel arrive for training who have never visited a US base; units must guard against assuming these visitors know and understand US procedures, safety standards, and security prohibitions. Appoint a project officer or NCO (normally the wing CSM) for visit preparations. The project officer or NCO:

18.8.5.1.1. Prepares the invitation message and assures its transmission at least 3 weeks prior to the visit date. The message format is in ACE Directive 80-53.

18.8.5.1.2. Arranges billeting, messing and transportation, as required. Meet the visiting personnel upon arrival.

18.8.5.1.3. Ensures each visitor has the project officer or NCO’s office symbol, and home and duty phone numbers. Explain to the visitors who they should contact if any problems arise during the visit. Since language barriers may exist, consider developing a wallet-sized card with POC information for the visitors to carry.

18.8.5.1.4. Closely monitors the visit.

18.9. Aircraft Inlet/Exhaust Certification.

18.9.1. F-16/F-15 Aircraft Intake Inspections. An engine intake inspection is required between all sorties. If this can not be accomplished while aircraft are off station, and no qualified personnel are available to perform the inspection, the aircrew will document in the AFTO Form 781A, on a Red Dash, that the Preflight, Post Flight, or Thru Flight inspection is overdue, and the reason for non-accomplishment (no tech data, no qualified personnel, etc). The MXG/CC will determine in an OI if intake inspections are required after each engine operation (i.e. taxi, INS alignment, sortie cancellation, abort, etc.)

18.9.2. Responsibilities and Management. Maintenance Training in coordination with subject matter experts (SMEs) will be responsible for the development and management of the engine inlet/exhaust inspection training program. The MXG/CC will appoint maintenance personnel, instructors and certifiers in writing and tracked on the SCR. **NOTE:** CETS may be used as alternate instructors.

18.9.3. Target population. Only certified 5, 7, and 9 level technicians with Air Force Specialty Codes 2A3X2, 2A3X3, 2A5X1/2, 2A6X1X, and 2A6X6 may perform these inspections.

18.9.4. Formal Training. Maintenance training in coordination with the SME will develop and manage training. As a minimum, courses will include care and handling of the equipment, all applicable tech data, FOD prevention, inspection criteria, fault isolation/damage assessment, and performance of an actual engine intake/inlet/exhaust inspection. Training is designed to train

aircraft maintenance personnel on techniques required to inspect engine intakes, inlets and exhausts. Training should be conducted on an uninstalled engine to better familiarize each student with engine forward section components. Prior to placement on the Special Certification Roster for engine intake/inlet/exhaust inspection formal training and certification (Maintenance training course) is mandatory.

18.9.4.1. Documentation. Ensure the individuals training records are signed off. Maintenance Training will develop course codes in MIS to track training and certification.

18.9.5. Certification Criteria. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3X) AFSC (Aircraft Maintenance 2A5X1X and Helicopter Maintenance 2A5X2, or Engine CETS if applicable). Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other.

18.9.5.1. Annual Recertification. Each certified technician is required to be recertified annually by a certifying official. Recertification of the certifying official and qualified personnel will be accomplished annually by accomplishing the initial certification criteria.

18.9.6. QA will evaluate engine intake/exhaust inspections as part of the QAP.

18.10. Aircraft Structural Integrity Program (ASIP) and Related Programs .

18.10.1. The aircraft structural integrity and flight loads data recording/individual aircraft tracking programs are established by applicable TOs, and AFI 63-1001, *Aircraft Structural Integrity Program*, and require coordinated action by a number of base level maintenance activities. An effective structural data collection program is essential to establish, assess and support inspections, maintenance activities, repairs and modification/replacement actions required.

18.10.2. The group commander ensures an effective local aircraft structural integrity program (ASIP) is established, appoints an officer or NCO as the unit ASIP project officer, and ensures effective measures are in place to capture ASIP data.

18.10.3. The group ASIP project officer will:

18.10.3.1. Act as OPR for a local ASIP OI. As a minimum, the OI will address the following:

18.10.3.1.1. Identification of maintenance activities responsible for changing and submitting storage media.

18.10.3.1.2. Requirements for appointment of flight or section ASIP monitors.

18.10.3.1.3. Procedures to support ASIP equipped aircraft at deployed locations.

18.10.3.1.4. ASIP training requirements, method of documentation, and responsibility for providing training to technicians responsible for maintaining ASIP systems, changing tapes, and to debrief personnel.

18.10.3.1.5. Review ASIP correspondence and ensure requests for action receives prompt attention.

18.10.4. Coordinate LRS support of the ASIP program.

18.10.5. Ensure maintenance activities are changing and submitting tapes in a timely manner and ASIP data is being properly recorded during aircraft debriefing.

18.10.6. Maintenance activities responsible for maintaining ASIP systems/changing tapes will:

18.10.6.1. Change and submit tapes as required.

18.10.6.2. Maintain records of tape changes and submissions by aircraft tail number showing the recorder serial number, tape installation date, tape removal date, and date the tape was shipped.

18.10.6.3. Coordinate with appropriate production supervisors to cannibalize ASIP related parts.

18.10.6.4. Inform the group ASIP project officer of backordered parts with unacceptable delivery dates, difficulties in acquiring tapes, etc.

18.10.6.5. PS&D sections will ensure ASIP equipped aircraft are identified as such in weekly schedules and that the jacket files for these aircraft are clearly marked to show ASIP equipment is installed.

18.10.6.6. Maintenance debriefers will ensure that appropriate ASIP documents are available at the debriefing location and that ASIP data is gathered for each sortie flown by ASIP equipped aircraft.

18.10.7. Periodic Inspection Dock Supervisor Responsibilities.

18.10.7.1. Establish, maintain and periodically review for accuracy an ASIP inspection list documenting each aircraft's inspections. Ensure the inspection list is annotated as the inspections are completed.

18.10.7.2. Establish preprinted dock worksheets with the required inspections, and ensure that the individuals responsible for the inspection sign off their work once completed.

18.10.7.3. Ensure that the ASIP inspections are required for each periodic inspection input so that erroneous/unnecessary inspections are not accomplished.

18.10.7.4. Ensure all ASIP inspections are complied with prior to closing out the periodic inspection.

18.10.7.5. Coordinate all required ASIP inspections with the NDI and Sheet Metal Supervisors.

18.10.7.6. Periodically review the periodic inspection work cards for latest revisions and accuracy.

18.10.8. Plans, Scheduling and Documentation (PS&D) Responsibilities.

18.10.8.1. Establish procedures and ensure that ASIP special inspections are properly loaded in the appropriate Maintenance Information System, and scheduled for all assigned aircraft.

18.10.8.1.1. Notify ANG/LGM in the event a special ASIP inspection has not been loaded into MIS, and request the programmer to create the master record.

18.10.8.2. Maintain and ensure the accuracy of the ISO count number and the ISO inspection number for all assigned aircraft.

18.10.8.3. Monitor and ensure that a master record is created for each aircraft assigned.

18.11. Flexible/Rigid Borescope Inspection Training and Certification Program.

18.11.1. General. All units maintaining engines/helicopter gear boxes with a TO requirement to use a borescope, and those that do not have a TO requirement to use a borescope but do so to enhance inspections, will have a comprehensive training program established. The purpose of the program is to ensure proper care of equipment, minimum standards are met, and standardization and proficiency. The following requirements do not apply to units that do not require or use the borescope.

18.11.2. Authorized Personnel. Only certified 2A3X3, 2A5X1/2, and 2A6X1X, 5, 7, and 9 levels may perform borescope inspections.

18.11.3. Formal Training. Maintenance training, in coordination with SMEs will develop and manage training. The MXG/CC or designated representative will select maintenance instructors or AETC TD instructors to provide training, (Roving Reps/CETS may be used as alternate instructors). As a minimum, courses will include care and handling of the equipment, port location, all applicable tech data, fault isolation/damage assessment/defect size determination, and performance of an actual engine borescope.

18.11.4. Certification Criteria. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3) AFSC (Aircraft Maintenance 2A5X1X and Helicopter Maintenance 2A5X2, or Propulsion Roving Reps/CETS if applicable) designated by MXG/CC and tracked in the SCR. The number of certifying officials will be limited to the amount needed to meet certification requirements and mission demands. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. Engine CETS and Roving Reps will train certifiers; however, the certifying officials must be certified by the MXG/CC. Certifying officials will then train and certify the remaining qualified personnel. Units that do not have practical access to CETS or Roving Reps, the unit certifier will complete the local training course and be appointed by the MXG/CC, based on their technical expertise, knowledge, and experience on the engine. **NOTE:** If applicable, assigned AFETS should be used to certify other certifying officials. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR.

18.11.5. Documentation. After completing formal training, the instructor signs off the individual's AF Form 623. Upon certification, personnel are placed and tracked on the SCR. The 120-day proficiency will be tracked through MIS or a locally developed method by the workcenter supervisor or designated representative. Ensure that all borescope inspections are loaded against the engine and not the aircraft.

18.11.6. Maintenance Training will develop course codes in MIS to track the following:

18.11.6.1. Formal training borescope course.

18.11.6.2. Initial borescope certification.

18.11.6.3. 120 day proficiency requirement (if applicable).

18.11.6.4. Annual recertification.

18.11.7. Proficiency Requirements. As a minimum, personnel bound by TO requirements for flexible borescope inspections must perform one flexible borescope inspection every 120 days to maintain proficiency. Workcenter supervisors ensure personnel who do not meet minimum

requirement are decertified. In addition, personnel who have an on-condition flexible borescope requirement or units who do not have a TO requirement but choose to use a flexible borescope to enhance their inspections must perform one flexible borescope inspection every 180 days.

18.11.8. Annual Recertification. Each borescope-qualified technician is required to be recertified annually by a certifying official. This is accomplished by having technicians demonstrate proper inspection requirements, as well as, use and care of equipment.

18.12. Engine Blade Blending Training and Certification Program

18.12.1. General. This program requires all units to have a comprehensive training program that will ensure minimum standards are met, and proficiency is maintained. The number of individuals authorized to inspect and repair blades should be sufficient to meet mission requirements and production needs. Additionally, this program will ensure competency through regular performance. **EXCEPTION:** T56/T64/T400/T700 units will have a training program for blade blending, but are not required to maintain proficiency.

18.12.2. Authorized personnel. Only certified 2A3X3, 2A5X1/2, and 2A6X1X, 5, 7, and 9 levels may perform blade blend inspections and repairs.

18.12.3. Responsibilities and Management. Maintenance training, in coordination with SMEs or Training Detachment (TD) will be responsible for management and development of the blade blending training program. As a minimum, course will include care and handling of the equipment, all applicable tech data, fault isolation/damage assessment/defect size determination, and performance of an actual engine blade blend. Training is designed to train aircraft maintenance personnel on techniques required to correctly inspect and repair blades. Prior to placement on the Special Certification Roster for blade blending and certification the formal blade blending training (Maintenance training or TD course) and initial engine blade blending certification is mandatory.

18.12.4. Documentation. MXG/CC will select maintenance instructors, engine CETS or Roving Reps to provide training. Each unit must establish and maintain a record of training and certification/recertification. Maintenance training will develop course codes in MIS to track the following;

18.12.4.1. Formal training, engine blade blending course.

18.12.4.2. Initial engine blade blending certification.

18.12.4.3. Annual engine blade blending certification.

18.12.4.4. 180-day engine blade blending proficiency requirement.

18.12.5. Certification Criteria. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), Aircraft Maintenance (2A3X3X) AFSC (Aircraft Maintenance 2A5X1X and Helicopter Maintenance 2A5X2) designated by the MXG/CC and tracked in the SCR. Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. **NOTE:** If applicable, assigned engine CETS or Roving Reps should be used to certify other certifying officials. Upon completion of the formal training, individuals are task evaluated by the certifying official (can be an individual other than the instructor who administered the course), and placed on the SCR. After receiving training by engine CETS/Roving Representatives and having performed a blade blending

demonstration, certifying officials must be certified by the MXG/CC.

18.12.6. Proficiency Requirements. As a minimum, F-15, F-16, personnel must perform one blend repair every 180 days to maintain proficiency. Workcenter supervisors ensure personnel who do not meet this requirement are decertified. Ensure all blade blend repairs accomplished on installed engines are loaded against the engine and not the aircraft.

18.12.7. Annual Recertification. Each qualified technician must be recertified annually by a certifying official. This is accomplished by having the technician demonstrate that they can perform the task.

18.12.8. Blade Blending Documentation Procedures: Blade blending procedures for installed engines:

18.12.8.1. Notify Wing FOD Manager (or monitor) prior to blade blending, anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 and the Comprehensive Engine Management System (CEMS), IAW TO 00-20-1.

18.12.8.2. Notify Engine Management Section with the following information for input into engine historical records; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number of maintenance personnel.

18.12.9. Blade blending procedures for uninstalled engines/modules:

18.12.9.1. Notify Wing FOD Manager (or monitor) prior to blade blending, anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95, and CEMS IAW TO 00-20-1.

18.12.9.2. Fill out Blade Blending/FOD Damage worksheet or applicable form; file in engine/module work package.

18.12.9.3. Engine Management Section document following information for input into engine historical records; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number of maintenance personnel.

18.12.10. Personnel who become decertified must receive initial training and exhibit proficiency before being placed back on the SCR.

18.13. End-of-Runway (EOR) Inspection.

18.13.1. The EOR inspection is a final visual and/or operational check of designated aircraft systems and components. It applies to aircraft designated in joint agreement between the lead MAJCOMs and appropriate SM. The SM will list minimum inspection requirements in the applicable -6 and publish in a work card deck.

18.13.2. This inspection is performed immediately prior to take-off at a designated location usually near the end of the runway.

18.13.3. The purpose of the inspection is to detect critical defects that may have developed or have become apparent during ground operation of the aircraft after departing the aircraft parking spot.

18.13.4. Perform this inspection when any applicable aircraft is launched from either home

station or a transient USAF base.

18.13.4.1. Alert aircraft launched from alert status do not require this inspection. **NOTE:** Alert Force Evaluations will not require an EOR inspection and will be treated as active Air Defense scrambles. Alert aircraft that launch for training missions from alert status will require an EOR inspection.

18.13.5. If local requirements dictate, publish additional guidance to technical orders for the inspection in accordance with TO 00-20-1, and TO 00-5-1. Wings must insure standardization by MDSs. **NOTE:** Safing, arming, and de-arming of live munitions will be accomplished by personnel qualified IAW Chapter 16 of this instruction.

18.13.6. The team chief (identified by a reflective vest) carries an EOR checklist and ensures each item is inspected as required. On aircraft with a ground intercom system, units are only required to establish verbal communications with the pilot when communication beyond the standard EOR marshalling hand signals is required. If the aircraft is not equipped with a ground intercom system, ground control talker cards will be used when communication with the aircrew becomes necessary.

18.13.7. Marshaling signals will be IAW AFI 11-218, *Aircraft Operation and Movement on the Ground*.

18.13.8. Units will develop procedures to ensure discrepancies discovered during the EOR are entered in the AFTO Forms 781A and MIS.

18.14. Flash Blindness Protective Device.

18.14.1. Flash Blindness Protective Device Maintenance Program. This program standardizes procedures for cleaning, repairing, installing, inspecting, storing, packaging, and sealing of flash blindness protective devices (e.g. shields, thermal curtains and thermal radiation barriers), on applicable aircraft. The MXG/CC is responsible for ensuring effective aircraft thermal protective device maintenance is accomplished according to applicable aircraft technical manuals, maintenance directives, and the requirements of this section. Aircraft flash blindness protective devices/shields are maintained serviceable to provide optimum nuclear thermal/radiation protection to the aircrew during EWO/SIOP conditions.

18.14.2. Sortie Support Flight Responsibilities.

18.14.2.1. The flight OIC or superintendent ensures aircraft thermal protective devices, shields, and associated hardware are maintained according to aircraft technical orders and approved maintenance manuals, maintenance instructions, and this publication.

18.14.2.2. Each flight or section establishes an adequate and effective training program to train and qualify individuals to install, inspect, and when required, seal aircraft thermal protective devices and shields. **NOTE:** Units are authorized and encouraged to maintain sufficient condemned thermal curtains to allow maintenance and crew personnel installation practice without using serviceable curtains. Thermal curtains designated for training are plainly labeled "FOR TRAINING ONLY" to preclude inadvertent use for alert or SIOP/TNO/EWO purposes. Thermal curtains designated for training use are controlled by the flight superintendent, however, curtains may be furnished to, and retained by, squadrons for classroom purposes.

18.14.3. Do not store training curtains aboard aircraft. Use of training thermal curtains is encouraged during NAF and local generations.

18.14.4. Do not seal thermal-protective devices and shields on a routine basis unless dictated by specific aircraft tech data. However, when operational requirements dictate, crew chiefs may perform this task using the lead-seal-crimping tool. Modify lead-seal crimping tools to reflect the unit numerical code (e.g., Minot-5, Mildenhall-100, Kadena-18) that is reflected on the lead seal after crimping. **NOTE:** Control and account for lead-seal crimping tools according to CTK procedures (Chapter 13) and approved aircraft manuals.

18.14.5. Fabrication Element Responsibilities.

18.14.5.1. Fabrication ensures aircraft thermal-protective devices and shields are repaired according to appropriate aircraft technical orders.

18.14.5.2. Train and task qualify fabrication and parachute technicians to inspect and repair thermal protective devices and shields.

18.14.5.3. Modify lead-seal crimping tools to reflect the unit numerical code identifier (e.g., Minot-5, Mildenhall-100, Kadena-18) that is reflected on the lead seal after crimping. Control and account for lead seal crimping tools according to CTK procedures (Chapter 13) and approved aircraft manuals.

18.14.6. Additional Maintenance Requirements. In addition to the inspection requirements contained in aircraft technical orders, perform the following inspection, certification, and sealing procedures:

18.14.6.1. Conduct a pre-alert inspection of all aircraft thermal-protective devices, shields, and associated hardware according to technical data. Document the pre-alert inspection in the AFTO Form 781A, with the following statement: "Thermal Protective Devices/Shields Inspection Required." During the aircraft pre-alert inspection, a qualified fabric/parachute technician (AFSC 2A7X4) or crew chief (2A5X1) assists the aircrew in accomplishing this inspection. The aircraft commander certifies the aircraft thermal protective devices and shields for alert. Upon certification acceptance, the crew chief signs the "Corrected By" block of the AFTO Form 781A entry, and the aircraft commander signs the "Inspected By" block. **NOTE:** These provisions apply during SIOP generations.

18.14.6.1.1. Pre-deployment inspections are not required once the aircraft thermal-protective devices and shields are inspected and sealed with a seal displaying the installation identifier. However, prior to deployment, inspect the thermal-protective device and shield seals and re-inspect and reseal seals that are broken or not intact.

18.14.6.2. Perform the following sealing procedures on alert aircraft:

18.14.6.2.1. All aircraft thermal-protective devices and shields are sealed either in the opened or closed position or in the storage container, as appropriate, upon certification by the aircraft commander. Appropriate aircraft flight manuals specify thermal protective devices and shields that are sealed in the opened or closed position or storage container.

18.14.6.2.2. Upon aircraft alert termination, a qualified crew chief removes thermal protective devices inspects and reseals devices that are serviceable. Transport unserviceable device to the survival equipment section for inspection and repair. Devices and shields remaining sealed are not re-inspected. Remove and seal all devices and shields in appropriate storage container, if required.

18.15. Ground Instructional Trainer Aircraft (GITA).

18.15.1. Permanently assigned GITA aircraft are those aircraft that are not maintained in airworthy condition. Active GITA are maintained in system/subsystem operational condition for purposes of maintenance training and normally carried in possession code TJ. Inactive GITA are aerospace vehicles either temporarily or permanently grounded for use in personnel training and normally carried in possession code TX. This section does not apply to ABDR training aircraft. ABDR training aircraft are managed by HQ AFMC/LGXC-PO. This chapter does not apply to training equipment maintained by CLS contracts administered by commands other than AETC.

18.15.2. Group Commander Responsibilities:

18.15.2.1. Owning group commanders, unit to which the GITA is assigned, will develop an OI to define the scope of group training functions for GITA use; functional responsibility for funding, operations, maintenance, and records management.

18.15.2.2. The owning commanders are responsible for the maintenance of GITA used in support of training. Owning units that do not have organic maintenance/ logistics capability will establish host tenant support agreements or memorandums of understanding assigning maintenance responsibility. GITA maintenance includes on and off equipment maintenance of active systems and subsystems and necessary actions to maintain the aerospace vehicle in a presentable condition. The commander:

18.15.2.2.1. Determines which system and subsystem are required to support the training. Consider present, future, and cross-utilization of systems when making determinations. These systems will be maintained in the same configuration as operational equipment.

18.15.2.2.2. Ensure explosive components are removed.

18.15.2.2.3. Place retained systems and subsystems not currently being used for training into extended storage per applicable technical data.

18.15.2.2.4. Ensures standard maintenance practices regarding inspection appearance, cleanliness, ground safety, and prevention of corrosion are met. Corrosion control procedures are outlined in TO 1-1-691, *Aircraft Weapons System-Cleaning and Corrosion Control*.

18.15.2.2.5. Develops and prepares inspection check sheets for use in inspecting the condition and safety of equipment before use and ensures inspections are performed. Prior-to-use inspections are conducted by the using organization employing a tailored weapon system pre/post dock checklist. Conducts periodic maintenance inspections using a tailored work deck.

18.15.2.2.6. Prepare a separate memorandum for each GITA, addressed to the appropriate ALC SM for the aircraft and informing the SM of the systems and subsystems that will be maintained in operational configuration. When changes in requirements occur, initiate a new memorandum to the SM. Provide copies of all GITA memorandums to the ANG Aerospace Vehicle Distribution Officer (AVDO).

18.15.2.2.7. Ensures accurate aerospace vehicle inventory reporting according to AFI 21-103 as required for ground trainers. Aerospace vehicles used for ground trainers are exempt from status and utilization reporting.

18.15.2.2.8. Ensures accurate maintenance documentation. Document maintenance actions per 00-20 series TO. Use of MIS for GITA records management is mandatory. Owning units not

having logistics capability will establish host tenant support agreements or memorandums of understanding.

18.15.2.2.9. Ensures timely completion of TCTOs on systems designated for configuration management and proper configuration status accounting is maintained. Accomplish TCTOs on systems not designated for configuration management as required to ensure safety of operation or as directed by SM on aircraft coded as "TJ".

18.15.2.2.10. Ensures proper coordination and documentation of parts removed from training aircraft are accomplished as follows:

18.15.2.2.10.1. When an item is removed or replaced, supervisors ensure this action is documented in the AFTO 781 series forms. Include the authority for removal (message number, telecon, letters, and dates, etc.) and condition of installed/replacement items.

18.15.2.2.10.2. When the limited save list actions have been done, forward a copy of the completed list to the documentation function. This copy becomes part of the historical records. Also forward a second copy to the appropriate ALC/SM.

18.15.2.2.10.3. Identify all unserviceable components furnished by ALC in a conspicuous manner (red X or red dot system).

18.15.2.2.10.4. Ensure weight and balance handbook requirements are complied with according to TO 1-1B-50 and applicable -5 series TO.

18.15.2.2.10.5. Ensure operating and maintenance technical data are readily accessible whenever the GITA is in use or undergoing inspection.

18.15.2.2.10.6. Identify an individual to oversee GITA as an additional duty. Individual must possess the technical expertise, management skills, and leadership ability to assure quality maintenance standards of equipment condition, reliability, and safety are attained. Individual is responsible to accomplish and/ or coordinate maintenance actions for the GITA, ensure GITA documentation is accurate and complete, and be qualified to operate GITA systems and appropriate support equipment to conduct GITA maintenance.

18.15.2.3. For equipment designated as trainers, only the systems required for technical training (or those required to ensure safety or system integrity) need to be maintained. (This does not apply to "temporarily" grounded aircraft or operational equipment or systems on loan from MAJCOMs or ALCs.)

18.15.3. Technical Data Applicability:

18.15.3.1. Operational systems on GITAs will be maintained in accordance with applicable technical data. The specific policy governing the use and modification of technical data is contained in TO 00-5-1. Some systems may be operated and maintained with original contractor data because formal technical data was never issued and/or the contractor data was never assigned a TO number.

18.15.3.2. Inspection and lubrication requirements on TX coded aircraft may be adjusted to correspond with training requirements and equipment usage and to prevent over or under inspection. Additionally, where significant savings may be achieved, the commander or contract project manager (in coordination with the functional commander or director) may authorize deviations or changes to technical data requirements, including substitution of materials. In all

cases, safety or design function must not be compromised.

18.15.3.3. TCTO Process. The TCTO process is outlined in this instruction, and TO 00-5-15. The QA function or other designated agency is responsible for determining applicability of TCTOs for GITAs.

18.15.4. Maintenance Documentation. Maintenance on configuration controlled or operational training GITAs will be documented in the applicable automated MIS in accordance with 00-20-series TOs.

18.15.4.1. Commanders or contract project managers will determine the documentation requirements for non-configuration controlled and non-operational training GITAs.

18.15.5. GITAs are aerospace vehicles either temporarily or permanently grounded for training. The differences are as follows:

18.15.5.1. Temporarily Grounded. Temporarily grounded aerospace vehicles are subject to recall to the active fleet and are in assignment code TJ (AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*).

18.15.5.1.1. Only those items requested by the ALC SM will be considered for removal. If the item does not affect training and if approved by GP/CC, the part will be removed and turned in as per ALC SM instructions.

18.15.5.1.2. Units are responsible for storing uninstalled or removed equipment that is not required for training.

18.15.5.2. Permanently Grounded. Permanently grounded aerospace vehicles are those declared excess to future operation or flying requirements by HQ USAF. Aircraft in this category will be redesignated by the addition of the prefix G to the basic MDS and identified with assignment code TX. Permanently grounded missiles retain their original MDS without a prefix. **NOTE:** Aircraft that have been terminated from the Air Force inventory per AFI 16-402 will not be reported as GITAs. Any questions about the designation of an aircraft used for training should be directed to the ANG/AVDO.

18.15.5.2.1. Upon assignment of a permanently grounded GITA, the SM will initiate a preliminary "save list," identifying items to be removed and turned in to LRS.

18.15.5.2.2. If an item on the save list is not removed, annotate the reason for not removing it and coordinate with the applicable SM and GP/CC. If items on the save list are required for training and an unserviceable item will suffice, units should inform the SM.

18.16. Land Mobile Radio Management.

18.16.1. Maintenance Communications. Reliable, redundant, and effective communications systems are essential for efficient maintenance operations. These systems should provide accurate, timely, secure, programmable frequency and jam resistant communications needed to accomplish the maintenance mission in a fully deployed isolated mode. The MXG/CC designated OPR has the overall responsibility to ensure adequate communications are available and manage the non-tactical radio program. People receive initial radio operating training before assuming duties involving radio operation AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*; AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum*

Management; and AFI 33-202, *Computer Security*. For effective flightline operation, more non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when host tenant agreements so specify. The following general guidelines apply:

18.16.1.1. Allowance for specific radios are shown in AS 660, *Equipment Allowances for Non-Weapon Systems Communications Requirements, Repair Cycle Data Listing*. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110, AFI 33-106, AFMAN 33-120, AFI 33-118, and AFI 33-202.

18.16.1.2. A VHF/UHF radio is authorized to provide communications between aircraft and maintenance. Aircrews may relay advance status information. Coordinate procedures for use of these radio communications with operations.

18.17. Hot and Aircraft-to-Aircraft Refueling Procedures.

18.17.1. Hot refueling is the transfer of fuel into an aircraft having one or more engines running. Aircraft to aircraft ground refueling (hot or cold) procedure permits the rapid refueling of aircraft in a tactical, forward operating area and also provides a means of refueling an aircraft where appropriate fuel is not available (i.e., JP-7). The purpose of hot refueling is to reduce aircraft ground time, personnel and equipment support requirements and increase system reliability by eliminating system shut down and subsequent restart. Refer to the following sources for additional guidance: TO 00-25-172, TO 00-25-172CL-4, TO 37A9-3-11-ICL-1 and AFOSH Standard 91-100. Units possessing A/OA-10, F-15, and F-16 combat coded (CC), or E-4B, and HH-60G combat support coded (CA) aircraft certified for hot/aircraft-to-aircraft refueling develop and maintain the capability to quickly and safely hot refuel those assigned aircraft. This requirement also applies to training funded (TF) units that have specific contingency taskings. This section does not apply to concurrent servicing operations used on large-frame aircraft.

18.17.2. Prerequisites.

18.17.3. Hot/aircraft-to-aircraft refueling is not accomplished until the location, equipment requirements, and personnel qualifications are certified IAW this instruction and TO 00-25-172.

18.17.3.1. Each base fuels management flight will maintain sufficient hot refueling certified fuels specialists for each operations squadron authorized to conduct hot refueling.

18.17.3.2. Site Certification. Hot pit refueling sites must be certified in accordance with TO 00-25-172 and this instruction. Certification involves training a cadre of instructor personnel and approving specific hot refueling sites. After initial ANG certification, unit commanders document by position, a unit certification team to recertify existing hot refueling sites and to approve additional on-base and deployment location hot refueling sites. The base site certification team consisting of the following:

18.17.3.2.1. Field grade maintenance officer as the site certifying official.

18.17.3.2.2. Representative from Airfield Management Office, knowledgeable of aircraft taxiways, parking ramp, and hot refuel safe distance requirements.

18.17.3.2.3. Maintenance AFSC member from QA office, knowledgeable of hot/aircraft-to-aircraft refueling procedures.

18.17.3.2.4. Wing Ground Safety member, minimum SSgt 1S071 or civilian equivalent, task qualified in site certification and knowledgeable of hot/aircraft-to-aircraft refueling operations.

18.17.3.2.5. Fuels management flight member, AFSC 2F0X1.

18.17.3.2.6. Civil engineering member, AFSC 3E271 or civilian equivalent, familiar with aircraft ramp requirements for hot/aircraft-to-aircraft refueling.

18.17.3.2.7. Fire protection member, minimum AFSC 3E771 or civilian equivalent, familiar with fire protection standby requirements in TO 00-25-172 for hot/aircraft-to-aircraft refueling.

18.17.4. QA will be responsible for maintaining all hot pit/aircraft-to-aircraft site certification documentation and a master listing of all hot pit/aircraft-to-aircraft sites. QA will forward a new consolidated hot pit site certification listing to ANG/LGMM anytime sites are added, changed, or deleted. Each unit hot/aircraft-to-aircraft-refueling site will be re-certified by a unit re-certification team, and approved by ANG/LGM, when one of the following occurs:

18.17.4.1. Change in the unit MDS, or an additional MDS.

18.17.4.2. Construction of new hot/aircraft-to-aircraft refueling sites.

18.17.4.3. Change in refueling equipment.

18.17.4.4. Changes in the certified site(s) area which affect/change the previous certification.

18.17.5. Hot pit/aircraft-to-aircraft site master listing. This listing must contain the following information for all hot pit/aircraft-to-aircraft sites on that installation, and are required prior to hot pit refueling site certification:

18.17.5.1. All sites must be identified by coordinates on a map. Each facility that is within the distance identified in TO 00-25-172, must be identified as to its use/contents and its distance in feet from the refueling site/operation. Other refueling sites, aircraft parking areas, etc. also need to be identified. All distances must be shown even if a violation exists. If there are no violations, state so on the request cover letter. Procedures such as aircraft taxi routes should also be shown. Use arrows or dotted lines to show taxi directions both entry and exit. Address any restrictions to normal operations and actions required to comply with TO 00-25-172.

18.17.5.2. State the type of equipment used for hot/aircraft-to-aircraft refueling at each site, i.e., hose carts, truck, etc. Show the location of any fixed fuel pits and usual location of cart or truck if used. Identify unit-approved sites on the aircraft-parking plan. CE, QA, and the Airfield Operations maintain copies of hot refueling sites on file. Forward record copies to ANG site certification team members.

18.17.5.3. State whether or not all hot/aircraft-to-aircraft refueling areas comply with the quantity-distance separation requirements of AFMAN 91-201 in relation to surrounding exposed sites/potential explosion sites.

18.17.6. Hot/aircraft-to-aircraft refueling requires detailed procedures published in appropriate technical orders and unit developed checklists. Unit checklists include detailed procedures, normal and emergency, to meet requirements of the local environment.

18.17.6.1. Unit checklists will be reviewed by ANG/LGMM representative.

18.17.7. Units publish procedures to supplement this section and outline local requirements and additional precautions as necessary for hot/aircraft-to-aircraft refueling, including hot refueling with ordnance, when authorized, IAW TO 00-25-172.

18.17.8. Units with CC/TF/CA aircraft will ensure that enough qualified hot/aircraft-to-aircraft

refueling crews are available to meet mission requirements. Maintenance personnel may be used.

18.17.9. The following listing provides questions that must be addressed as part of the site certification. This listing provides pertinent questions for the site, but is not provided as a substitute for TO 00-25-172:

18.17.9.1. Has the aircraft been System Safety Engineering Analysis (SSEA) approved for hot pit/aircraft-to-aircraft refueling?

18.17.9.2. Is adequate area provided to position the aircraft safely (evaluate ability to reposition due to wind direction)?

18.17.9.3. Is the ramp level to prevent drainage causing environmental impact? Request the fire department to dump water to verify flow if questionable?

18.17.9.4. Is the location adequate for the number of aircraft to be serviced?

18.17.9.5. Has a hot brake parking area been established?

18.17.9.6. Is there proper clearance between the hot pit area and hot brake holding area to prevent conflict?

18.17.9.7. Is there proper clearance between the hot pit and Explosive Clear Zone/Hot Cargo Pad/Airfield Clearance Zones to prevent violations of any area/zone?

18.17.9.8. Is the hot pit adequately clear of the aircraft/vehicle traffic area?

18.17.9.9. Is the hot pit and cursory check area of the ramp clear of FOD potential?

18.17.9.10. Does the location provide for rapid access of emergency equipment and egress of aircraft/equipment?

18.17.9.11. Are adequate grounding points available?

18.17.10. Hot or Aircraft-to-Aircraft-Refueling Team Members and Duties.

18.17.10.1. Pad supervisor: Responsible for overall supervision of hot/aircraft-to-aircraft refueling operations when two or more aircraft are simultaneously hot refueled on the same pad (multiple hot/aircraft-to-aircraft refueling). Individual will possess a 5-level or higher qualification in an aircraft maintenance AFSC and is hot/aircraft-to-aircraft refueling supervisor "A" member qualified or qualified aircrew member for the HH-60G aircraft. Supervisors must have full view and control of multiple hot/aircraft-to-aircraft refueling operations.

18.17.10.2. Refuel supervisor "A" member. Individual will be refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-level qualification and 1 year of flightline aircraft maintenance experience, or qualified aircrew member for the HH-60G aircraft.

18.17.10.3. Refuel crew "B" member. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and 1 year of flightline aircraft maintenance experience, or qualified aircrew member for the HH-60G aircraft.

18.17.10.4. Fuels specialist 2F0X1, "C" member. Individual will be refuel task qualified.

18.17.10.5. Additional refuel crew "D" member. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and have 1 year of flightline maintenance experience. Use "D"

members as required by applicable aircraft technical data.

18.17.11. Hot refueling team members and QA certifiers/evaluators may be multi-MDS qualified when more than one weapons system is permanently assigned to a squadron. After initial certification on each MDS, personnel must update their hot refueling currency by performing hot refueling on any weapon system. Element supervisors ensure personnel maintain proficiency on each assigned MDS.

18.17.12. Conducting Hot or Aircraft-to-Aircraft Refueling Training, Certification and Documentation. Refer to Table 18.2. (For additional information, refer also to AFI 11-235, *Forward Area Refueling Point (FARP) Operations*). The following apply:

18.17.12.1. Conduct qualification training of hot or aircraft-to-aircraft refueling personnel in three distinct phases. Stress safety requirements, emergency procedures and equipment inspection in all three phases of training. Procedures in TO 37A9-3-11-1CL-1, TO 00-25-172, and TO 00-25-172CL-4 are taught to all team supervisors and members. Conduct phase II and III utilizing joint sessions including 2F0X1 personnel and all maintenance AFSCs. Teach training utilizing joint sessions, using both fuels (2F0X1) and maintenance AFSC instructors. The MXG/CC designates a unit OPR for hot refuel training.

18.17.12.1.1. Phase I: “Familiarization” phase. Designated instructors familiarize trainees with applicable technical data, procedures and guidance for hot/aircraft-to-aircraft refueling. Place special emphasis on procedures for hot refueling with ordnance loaded, when authorized.

18.17.12.1.2. Phase II: “Hands-on” phase. Apply information learned in Phase I to develop in-depth knowledge and proficiency in all facets of hot/aircraft-to-aircraft refueling. Include proper operation, preventive maintenance, use of hand signals and emergency procedures. Simulate hot or aircraft-to-aircraft refueling by performing all hot or aircraft-to-aircraft refueling tasks without aircraft engines running (cold pit). Designated instructors demonstrate tasks, require trainees to perform tasks, practice emergency procedures, critique performance and provide additional training as required.

18.17.12.1.2. Phase III: “Demonstration/Certification” phase. Actual demonstration of hot/aircraft-to-aircraft refueling under the supervision of designated certifiers with aircraft engine(s) running. Certifier, certifies individuals upon successful demonstration of hot/aircraft-to-aircraft refueling.

18.17.12.3. HH-60 aircrew members are trained/certified IAW 58 SOW Formal School Courseware.

18.17.13. Document training for personnel performing, evaluating, supervising or instructing hot refuel operations as follows:

18.17.13.1. Document all aircraft maintenance and 2F0X1 personnel Phases I, II, and III initial training in the job qualification standard (JQS). For AFSCs where “refuel aircraft with engines operating” is not contained in the JQS, use AF Form 797 to document initial hot refuel training. Track recurring hot or aircraft-to-aircraft refueling certification in MIS.

18.17.13.2. AFSC 2F0X1 personnel use AF Form 1098, **Special Tasks Certification and Recurring Training**, to document Phases I, II, and III initial and recurring hot refuel training. Indicate multiple practical performances by placing a number before the letter in column F. File AF Form 1098 in individual’s AF Form 623.

18.17.14. Use the AF Form 2426 or locally approved form to add qualified hot/aircraft-to-aircraft refueling members, by position, to the unit's SCR.

Table 18.2. Hot Refueling Training/Certification Requirements.

Position	Required Training	Conducted by Whom	Do What	How Often	Special Requirements
QA T/E/C	I, II, III	Qualified T/E/C or ANG Certification Team	Train Evaluate & Certify	Annually	Evaluation by QA OIC/NCOIC
QA Augmentee T/E/C	I, II, III	QA T/E/C	Train Evaluate & Certify	Annually	Evaluation by QA OIC/NCOIC
Hot-Pad Supervisor	I, II, III	QA T/E/C or QA Augmentee T/E/C	Supervise or Perform as "A" Member	2 Multiple Hot Refuels Annually	Annual Evaluation QA T/E/C or QA Augmentee T/E/C
Hot Refuel A, B, C, D Member	I, II, III	QA T/E/C or QA Augmentee T/E/C	Perform in any Qualified Position	2 Hot Refuels each 180 days, ("C" only – Annually)	Annual Evaluation QA T/E/C or QA Augmentee T/E/C
Decertified Hot Pad Supervisor	Repeat II, III	QA T/E/C or QA Augmentee T/E/C	Supervise or Perform, as "A" Member	2 Multiple Hot Refuels Within 180 Days of Decertification	None
Decertified A, B, C, D Member	Repeat II, III	QA T/E/C or QA Augmentee T/E/C	Perform	2 Hot Refuels Within 180 Days of Decertification	None
Decertified QA T/E/C or QA Augmentee T/E/C	Repeat II, III	QA T/E/C or QA Augmentee T/E/C	Perform, Instruct, and Certify	2 Hot Refuels Within 90 Days of Decertification	Evaluation by QA OIC/NCOIC
All other Decertified Personnel	Repeat I, II, III	ANG Certification Team	Perform	N/A	Determined Case-by-Case ANG Certification Team

					Team
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Legend: T/E/C - Trainer/Evaluator/Certifier

18.18. Maintenance Recovery Team (MRT) Procedures.

18.18.1. The MXG/CC is responsible for deploying MRTs and equipment to recover aircraft at remote locations, as directed by this instruction (see Attachment 3 for MRT chief check sheet). Unit resources, including personnel, supplies, and equipment, will be made available to support en route aircraft recoveries. The MXG/CC may supplement this instruction in an OI. The MXG/CC will:

18.18.1.1. Ensure that adequate equipment resources, as authorized by applicable allowance standards (AS), are available to perform remote aircraft recoveries.

18.18.1.2. Ensure that enough individuals selected for MRTs are qualified to perform and complete all anticipated tasks, including In-Process Inspections (IPI) and Red X sign-offs. Consider the experience level of the individuals you select when the need is identified to troubleshoot repeat/recurring discrepancies, especially those that caused in-flight emergencies or involve safety of flight. The MXG/CC has the authority to grant approval for a single person to sign off their own work when only one individual deploys on an MRT in accordance with TO 00-20-1.

18.18.1.3. Ensure sufficient numbers of personnel, across all maintenance AFSCs, have official government passports to reduce deployment limitations and ensure adequate support of MRT taskings.

18.19. Not Used.

18.20. Red Ball Maintenance.

18.20.1. The term “Red Ball” is a traditional descriptor, recognized throughout aircraft maintenance, and defines a situation requiring a sense of urgency and priority actions. “Red Ball” maintenance normally occurs two hours prior to launch and until aircrew have released the aircraft back to maintenance. The Red Ball maintenance concept is intended to prevent late takeoffs and aborts by having qualified maintenance personnel available (e.g. in a truck or standby in the shop) during launch and recovery operations to troubleshoot, isolate, and repair system malfunctions. This includes when a specialist is immediately dispatched by MOC, expeditor, or Pro-super, to assist the crew in any discrepancy abnormal to the launch/recovery sequence. The MXG/CC will ensure local procedures are established (when Red Ball Procedures are used) and written in an OI. Red Ball maintenance will in no way authorize technicians to take shortcuts or deviate from technical orders, personnel safety requirements or fail to properly document the aircraft forms and MIS for completed repair actions. All red X discrepancies will be cleared from both the aircraft forms and the MIS prior to flight. Units will develop local procedures to ensure Red X discrepancies discovered during time-sensitive maintenance accomplished during red ball, launch, or EOR operations are input and cleared from the forms prior to flight and the MIS is properly documented as soon as possible (local procedures should be aimed at accomplishment of all maintenance documentation prior to

flight). If aircraft status changes, an exceptional release will be re-accomplished, by a certified individual upon completion of maintenance and before the aircraft is released for flight IAW TO 00-20-1. **NOTE:** When the MIS is down, develop procedures to ensure the appropriate documentation is completed as soon as the system is operational.

18.20.2. Red Ball Maintenance Procedures.

18.20.2.1. TOs, tools, rags, parts, unused supplies and checklists will be accounted for before the aircraft is allowed to taxi/takeoff.

18.20.2.2. Emphasis will be placed on FOD awareness/prevention during this critical maintenance operation.

18.20.3. If aircraft engines are operating, a safety observer (maintenance or aircrew member) will maintain interphone communications or in full view of the flight crew and be positioned to maintain overall surveillance of the aircraft and personnel performing maintenance. Situational awareness of high-velocity air, moveable surfaces, high-pressure fluids, electrical shock, and other specific system hazards, must be stressed to ensure personnel and equipment safety.

18.20.4. Weapons loaded aircraft will be safed IAW applicable MDS and/or weapons specific technical data.

18.20.5. Other requirements:

18.20.5.1. An appropriately configured vehicle may be available for the purpose of carrying tools and personnel used during flightline repair actions, and may be configured with an UHF radio and appropriate Land Mobile Radios (LMRs). It may also contain a forward supply point for appropriate Line Replaceable Units (LRUs).

18.20.5.2. Inlet and/or area inspection will be completed, as applicable, prior to start.

18.20.5.3. The Red Ball Maintenance team should consist of an appropriate number of knowledgeable individuals who are trained and skilled in troubleshooting and system repair.

18.21. Self-Inspection Program.

18.21.1. The purpose of the unit self-inspection program is to provide commanders and supervisors a management tool to assess unit compliance with existing directives. The self-inspection program is intended to be an on-going process implemented at all organizational levels and as a minimum must be accomplished annually. The self-inspection program not only enables units to gauge compliance with directives, but also provides a method to assess established processes, identify deficiencies, and implement corrective measures. Continuously assessing, measuring, and improving processes serves to improve mission effectiveness and efficiency and favorably postures units for higher headquarters inspections.

18.21.2. Program Guidelines: ANG Compliance and Standardization Requirements Lists (C&SRLs) will be used as a minimum to establish the program. The unit self-inspection program must be tailored to the organization's structure and mission. It should provide adequate coverage of the mission, resources, training, and people programs. Items not in compliance will be categorized as "Critical" or "Non-critical." Problems identified should be categorized by mission impact and compliance with policies and efforts needed to fix problems. A feedback mechanism and reporting process will be established by the MXG/CC to ensure non-compliance items are tracked until resolved, waived, or limiting factors (LIMFAC) are reported formally.

Results collected under this program will be provided to Quality Assurance for archiving and validation. Open "Critical" items will be reported to the MXG/CC, tracked, and status updated quarterly until resolved. Open "Non-critical" items will be reported to the Squadron/flight commander, tracked, and updated quarterly until resolved.

18.21.2.1. Definition of Critical: Items identified as key result areas for successful mission accomplishment including, but not limited to, items where non-compliance would affect system reliability or result in serious injury, loss of life, excessive cost, or litigation.

18.21.2.2. Definition of Non-critical: Areas that require special vigilance and are important to the overall performance of the unit, but are not deemed "Critical." Non-compliance could result in some negative impact on mission performance or could result in injury, unnecessary cost, or possible litigation.

18.21.2.3. In addition to C&SRLs checklists, use locally developed checklists tailored to specific unit requirements if needed. AFOSH Standards contain sample checklists for unit self-inspections Use Occupational Safety and Health Act (OSHA) inspections for workplaces with civilian personnel. See AFI 91-301.

18.21.3. OSHA inspections of Air Force contractor operations within the 50 states and US territories are authorized. These operations are subject to the enforcement authority of federal and state safety and health officials. See AFI 91-301.

18.22. Ramp Inspection Program.

18.22.1. Public Law 99-661 requires a pre flight safety inspection of all internationally scheduled charter missions for the transportation of members of the armed forces departing the United States. Air Mobility Command (AMC) is lead for the DoD in the management and administration of the Ramp Inspection Program. The Ramp Inspection Program ensures all internationally charter missions receive a pre flight safety inspection as outlined in AMC Supplement 1 to AFI 21-101. ANG units will contact AMC/LGM when a RAMP Inspection is required.

18.23. Foreign Object Damage (FOD). The Vice Wing Commander (CV) is responsible for ensuring an effective foreign object damage (FOD) prevention program is established. All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, AGE, engines, or components thereof will comply with FOD prevention. This section establishes minimum requirements for an effective and meaningful FOD prevention program.

18.23.1. Definition. FOD: Any damage to an aircraft engine, aircraft system, equipment or tire caused by an external foreign object which may or may not degrade the required safety and/or operational characteristic of the engine, aircraft system, or tire.

18.23.2. FOD Prevention.

18.23.2.1. While maintenance is being performed on aircraft, uninstalled engines, and AGE, openings, ports, lines, hoses, electrical connections, and ducts will be properly plugged or capped to prevent foreign objects from entering these systems.

CAUTION: At no time will items (e.g., aircraft forms binders, VTR tapes, checklists, etc) be placed in or on engine intakes.

18.23.2.2. Install intake plugs, FOD strips, or tape and barrier paper (as required by technical data) prior to performing maintenance in or around engine intakes. Ensure engine inlet run-up screens and anti-personnel guards are used as required by applicable weapon system TOs.

18.23.2.3. Prior to engine start/after engine shutdown on maintenance/test cell runs and after any engine intake maintenance, each affected engine intake and exhaust will receive a FOD inspection. The FOD inspection will be documented with a Red X symbol in the applicable form (AFTO Form 781A, or AFTO Form 349). FOD inspections performed on uninstalled test cell engines will be documented on the test cell worksheet.

18.23.2.4. Engine, aircraft and seat pitot tube covers will remain installed on aircraft as close to crew show as possible, based on MDS and local conditions.

18.23.2.5. Use a light source of sufficient illumination to inspect the aircraft intakes and exhaust for foreign objects/damage. A pocketless, zipperless, buttonless bunny-suit, (**NOTE:** Boots will be removed or cloth over-boot will be worn for engine intake inspections only.) will be worn whenever physical entry into an aircraft intake or exhaust is required. Suits are not required to be worn if personnel do not physically enter these areas. **NOTE:** A rubber mat may be used instead of cloth over-booties, or boots removed if MDS tech data directs. When performing intake inspections while wearing a chemical ensemble, ensure all pockets are emptied and accessories removed (MXG/CC may exempt KC-135, C-130, C-141, and A-10 from this requirement). **NOTE:** If chemical warfare ensemble metal zippers are exposed, cover them with any type of tape and account for the tape upon completion of the inspection.

18.23.2.6. Flashlights with metal clips will have the clips removed prior to use on or around aircraft, uninstalled engines, and AGE.

18.23.2.7. All maintenance production areas will have approved foreign object (FO) containers readily accessible to workers. All vehicles normally driven on the flightline will be equipped with secured and lidded FO containers and stenciled with the word "FOD" in contrasting letters no smaller than two inches. Back shops may locally manufacture small FO containers that can be used when an area collection can is not feasible. These containers will be emptied when full or once a day, whichever comes first.

18.23.2.8. Control all work order residue used on or around aircraft, uninstalled engines, and AGE.

18.23.2.9. Rag control applies to organizations and personnel performing on-equipment aircraft maintenance, jet engine maintenance, and other areas as designated by group commanders. Each unit will develop an OI for rag accountability IAW this instruction.

18.23.2.10. All personnel will remove the AF Form 1199, **USAF Restricted Area Badge** when performing intake/exhaust inspections if they physically enter these areas. Restricted area badges will be secured with a subdued nylon/cotton cord or plastic armband. Metal insignias/badges will not be worn on the flightline. Escorts of visiting personnel will ensure that FOD prevention measures are taken.

18.23.2.11. FOD walks of ramps are mandatory to remove foreign objects. Other FOD prevention measures will be taken to minimize the FO potential on runways and access roads. In addition vacuum/magnetic sweepers or sweeping by hand are highly encouraged to supplement FOD walks.

18.23.2.12. Each base will develop a local flightline clothing policy aimed at FOD prevention. Avoid wearing loose clothing or other articles that could be drawn into an engine intake or otherwise prevent the normal operation of equipment or systems. Specific attention will be given to the wearing of hats on the flightline and the wearing of badges and passes. Climate and safety will be considered. Hats/berets will not be worn within the danger area of an operating jet engine (as defined in the applicable aircraft-specific TO). Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry that may fall off without notice, are not authorized on the flightline.

18.23.2.13. When FOD is discovered on a transient aircraft, depot input/output, or a “Queen Bee” engine, the host FOD monitor or aircrew will notify the owning organization immediately. An informational copy of the FOD report will be provided to the owning organization’s safety office to ensure compliance with AFI 91-204. Aircrews will ensure proper documentation in the AFTO Form 781A has been completed.

18.23.2.14. Personal tools are not authorized on the flightline or in any maintenance area. (e.g. mini-mag flashlights, leathermans, buck knives, etc). Government tools/ equipment permanently assigned to individuals or duty position (e.g. government issued headsets, mini-mag flashlights, leathermans, buck knives, etc.) will be marked and controlled IAW with Chapter 13 of this instruction. No personally purchased communications devices will be allowed on the flightline or hanger areas (cell phones, pagers etc).

18.23.2.15. Pilots and aircrew members must account for all equipment and personnel items after each flight and ensure that any items that become lost during flight are documented in the aircraft AFTO Form 781A. Follow the guidelines IAW this instruction for items unaccounted for after flight.

18.23.2.16. Ensure local FOD prevention programs address the elimination of foreign objects in aircraft cockpits and flight decks prior to flight.

18.23.2.17. Use extreme care during engine ground runs. Pilot, aircrew, and ground crew awareness during ground operations (i.e. taxiing and turning) is critical. Jet blast and helicopter hover power check areas must be free of debris that could cause FOD.

18.23.2.18. Ensure newly assigned structural repair technicians are trained and certified on engine intake maintenance.

18.23.2.19. Special emphasis is required for items such as: remove before flight streamer attachment, safing pin condition, hinge pin security, dust and FO prevention cover condition/security, and aircraft forms binder condition. Periodically check these types of items for FO prevention compliance.

18.23.2.20. The MXG/CC / OG/CC in coordination will establish a lost object program.

18.23.3. Grounding wires/points:

18.23.3.1. Two allen head screws, or equivalent, will be utilized to secure cable to grounding clip. Fill screw holes with a sealant to prevent screws from backing out or as an option staking these screws in order to prevent the screw from backing out. Unused screws will be removed.

18.23.3.2. All grounding and tie down points will be kept clean of debris at all times and should be a high interest item for FOD walks.

18.23.4. Use of magnetic bars on the flightline is optional. If used, the magnetic bars will be towed by, or attached to selected vehicles primarily used on the flightline. Magnetic bars will be inspected and made FOD free prior to the beginning of each shift. A locally manufactured tool for removing debris from tire treads is authorized for use and will be identified to the vehicle by using the vehicle ID number.

18.23.5. Remove metal identification bands from all tubing, (except aircraft installed egress system components), and cables on the aircraft prior to use around aircraft. Do not remove manufacturer installed metal identification bands from hydraulic hoses. Hydraulic lines will be marked IAW TO 42EI-I-1, *Aerospace Hose Assembly*.

18.23.6. Use X-ray, borescope, and other state-of-the-art equipment to locate a foreign object in an inaccessible areas.

18.23.7. FOD Prevention Responsibilities.

18.23.7.1. The vice wing commander will be assigned as the FOD Prevention Program Manager and appoint a qualified technical sergeant (or above), or contractor if designated by performance work statement, with at least eight years experience in the maintenance field to the position of FOD monitor and their name will be posted in a prominent place within the unit on a locally developed visual aid.

18.23.7.2. To effectively manage the program, the vice wing commander will:

18.23.7.2.1. Ensure unit commanders, Maintenance supervision actively support the FOD Prevention Program.

18.23.7.2.2. Provide local guidance to ensure that each FOD mishap is investigated and action taken to solve any underlying problems.

18.23.7.2.3. Review all unit FOD mishap reports and analyze the reports and other data for trends that identify areas requiring management action.

18.23.7.2.4. Coordinate FO prevention needs with the airfield manager and other agencies when construction is in progress on or near the flightline, or other areas where FOD incidents could occur.

18.23.7.2.5. Ensure that FOD prevention is part of QA inspections.

18.23.8. FOD Monitor: The location of the FOD Monitor is at the discretion of the wing CV. The minimum responsibilities of the wing FOD monitor are to:

18.23.8.1. Inform all wing agencies of FOD hazards.

18.23.8.2. Develop a form to document and perform spot checks of selected areas monthly.

18.23.8.3. Be involved in each FOD investigation and help ensure that corrective actions are sound.

18.23.8.4. Monitor and recommend changes (as required) to FOD prevention training. Those units which have several types of aircraft assigned to them will have their own FOD prevention training incorporated into one wing training program. Ensures an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel.

18.23.8.5. Periodically inspect and report damaged pavement, flightline construction, or other hazards in or near aircraft parking ramps or taxiways to the airfield manager and monitor status

to ensure timely repairs.

18.23.9. FOD Investigation and Reporting. Units investigate each case of FOD to determine its cause. Report FOD mishaps according to AFI 91-204, *Investigating and Reporting US Air Force Mishaps*.

18.23.9.1. When suspected or confirmed FOD is discovered, the maintenance operations center (MOC) will be immediately notified. The MOC will notify QA. All aircraft sustaining FOD damage from an unknown cause will be considered for impoundment.

18.23.9.2. FOD incidents are classified as preventable and non-preventable. Only preventable FOD over \$20K (parts and labor) will be chargeable. FODs are considered preventable except those listed below:

18.23.9.2.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, and birds. Report this type of damage according to AFI 91-204, *Safety Investigations and Reports*.

18.23.9.2.2. From internal engine materiel failure, as long as damage is confined to that engine.

18.23.9.2.3. Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

18.23.9.2.4. Found during depot overhaul for maximum operating time.

18.23.9.3. Additionally, the following comments concerning FOD incidents apply:

18.23.9.3.1. Engine damage caused by improper anti-ice/de-ice procedures by either flight or ground crews are considered preventable.

18.23.9.3.2. Engine damage caused by gunnery or rocket mission ricochets is considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

18.23.9.3.3. Helicopter engine damage caused by rocks, stones, wood, or other objects ingested during low hover operations are considered non-preventable, provided mission parameters were not exceeded.

18.23.9.3.4. For FOD incidences leading to blade blending report IAW paragraph 18.12.9.1.

18.23.9.4. Appropriate ANG offices will assist in resolving any FOD issues that are questionable, i.e., preventable or non-preventable.

18.23.10. FOD Prevention Committee Meeting. Wing FOD prevention committee meetings ensure the FOD prevention program is sound and meeting unit needs. The CV is the committee chairperson. The MXG/CC will chair the meeting in the absence of the CV. Minimum attendee representation is group commanders, director(s), commanders of units with maintenance personnel, safety, CE, Airfield Manager, and security forces. The chairperson should designate additional attendees (agencies, detachments, etc.) as required. The host base FOD prevention committee chairperson will direct/incorporate tenant units in the host unit program. Tenant units should establish their own unit FOD committee, but will still participate in the host program and comply with host program requirements. Meetings will be conducted quarterly. The meeting will identify negative trends and develop action plans to resolve them. The meeting should also be used to recognize personnel making significant contributions to FOD prevention (e.g. FOD

poster contests, or other FOD recognition programs locally developed at each unit, etc.).

18.23.10.1. Suggested agenda items include:

18.23.10.1.1. Total number of airframe, engine, and tire FOD incidents during the reporting period. Indicate quantity and cause. Current status of all other pending incidents will be discussed.

18.23.10.1.2. Mechanical/vacuum sweeper status.

18.23.10.1.3. Review and refinement of the existing FOD prevention program.

18.23.10.1.4. New operational directives/actions established to minimize FOD.

18.23.10.1.5. Status and condition of applicable engine run-up screens.

18.23.10.1.6. Results of X-rays for FOs during engine bay inspections, acceptance inspections, and phase inspections. Maintenance trends should be discussed when an increase in FO is discovered during these X-rays.

18.23.10.1.7. Identification of potential FOD sources.

18.23.10.1.8. Lost tools/items.

18.23.10.1.9. Increased potential for FOD within the next 30-90 days.

18.23.10.1.10. Dropped objects. Pay particular attention to those that result in downstream FOD.

18.23.10.1.11. Breakdown of FOD inspections/assessments.

18.23.10.1.12. Cockpit FO or lost tool incidents.

18.23.10.1.13. Commanders comments.

18.23.11. Dropped Object Prevention (DOP) Program. A dropped object is any aircraft part, component, surface, or other item lost during aircrew operations, unless intentionally jettisoned from engine start to engine shutdown. Inadvertently released munitions or munitions released in excess of the quantity selected by the aircrew, or a multiple release, are not considered dropped objects and will be reported IAW AFI 91-204.

18.23.11.1. Responsibilities. All units, which fly, service, or maintain aircraft develop a DOP program with the following provisions:

18.23.11.1.1. ANG/DOS will act as OPR for all dropped object inquiries. The Vice Wing Commander will serve as the DOP prevention program manager. The Vice Wing Commander will appoint the wing DOP monitor.

18.23.11.2. Prevention. Effective prevention of dropped objects starts when an aircraft door, panel, or cowling is opened for maintenance and during munitions build-up, loading, and arming. Maintenance personnel will ensure the serviceability of fasteners and the proper fit of doors, panels, connectors, etc. Place special attention on the correct length of fasteners and condition of nut plates and other securing devices. Supervisors place special emphasis on these areas during the inspection of completed maintenance actions.

18.23.11.3. Investigation. The DOP monitor will investigate each dropped object incident. Every effort is made to determine the precise cause to ensure positive corrective action is

accomplished. Anytime a materiel or design deficiency is the cause, or suspected cause, a Deficiency Report will be submitted IAW TO 00-35D-54, even when an exhibit is not available. Investigation results will be distributed to each appropriate workcenter for inclusion in personnel training and education programs.

18.23.11.4. Reporting. Units will follow DOP reporting procedures below:

18.23.11.4.1. Dropped Object Reporting. ANG unit safety offices will coordinate with the unit MXG/CC to ensure maintenance personnel notify the safety office of dropped object incidents and help with part number identification and associated costs. Air National Guard Safety (ANG/DOS) will maintain a database on aircraft dropped objects. Reports will be submitted via the Internet at <https://airguard.ang.af.mil/se/droppedobjects> as soon as all the requested information is collected. ANG unit safety offices are responsible for submitting ANG Dropped Object reports. Reporting information will be sent to the ANG safety office of the unit that owns the aircraft. For loaned aircraft, the reporting information will be sent to the ANG safety office of the unit with operational control of the aircraft at the time of the incident. While ANG crews are operating active duty or reserve aircraft, no ANG safety Dropped Object report is required. This requirement is for safety trend and tracking information only, and is in addition to the dropped object operational reports required in AFMAN 10-206 and AFMAN 10- 206/ANG Sup 1. Units will maintain reports for a minimum of 24 months.

18.23.11.4.2. Follow-up formal report will be made to the ANG/DOS within 3 duty days after the occurrence.

18.24. Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) Testing.

18.24.1. Testing and Reporting. The MXG/CC will appoint a RWR/RTHW manager. The RWR/RTHW manager will coordinate test procedures with the wing electronic warfare combat officer (EWO) and the MXS, if applicable. The RWR/RTHW manager will ensure the required minimum number of checks are accomplished.

18.24.1.1. Every test will include a check of one signal per band and continuous wave (CW) if equipped.

18.24.1.2. Check the RWR/RTHW on all applicable aircraft prior to first sortie of the day launched on contingency missions. When an aircraft is found to have a malfunctioning RWR/RTHW system, the aircraft commander determines the course of action based on operational needs and requirements. Prior to base departure for OCONUS Missions, all deploying aircraft must perform and pass Radar Warning Receiver operational check out. When operating in contingency status, OCONUS Theater procedures for Radar Warning Receiver Testing must be followed.

18.25. Aircraft Information Program. The Aircraft Information Program (AIP) supports mishap investigations, Flight Operational Quality Assurance (FOQA), Reliability Centered Maintenance (RCM), Aircraft Structural Integrity Programs (ASIP), and Comprehensive Engine Trending and Diagnostics (CETADS). AIP program is required for each weapon system IAW AFI-63-1401. Its primary goal is to balance information needs with program resources and operational considerations.

18.25.1. AIP utilizes Flight Data Recorders (FDR) as the means for gathering data to support the programs listed above. Modern digital FDRs are capable of recording hundreds of aircraft

parameters for many hours. Their use is not limited to mishap investigation, but data acquisition as well.

18.25.2. FDR shall be mission essential. Actual combat deployments and Single Integrated Operational Plan (SIOP) alert are the only exceptions.

18.25.3. AAFP 63-14 requires periodic review of data collected by AIP recording devices and their associated support equipment to ensure proper operation of the recorder system(s). Applicable technical orders specify the download interval, procedures and instructions on sending data to the appropriate agency.

18.25.3.1. Aircraft with FDRs utilizing magnetic tape: make a copy of the tape and mail to the appropriate agency.

18.25.3.2. Aircraft with solid state FDRs: download data using applicable data transfer device and electronically transfer the data to the appropriate agency.

18.25.4. The MXG/CC ensures an effective local AIP is established, appoints an officer or NCO as the AIP project officer, and ensures effective measures are in place to capture data.

18.25.5. The group AIP project officer will:

18.25.5.1. Identify maintenance activities responsible for downloading FDR and data sent to applicable agency.

18.25.5.2. Ensure flight or section AIP monitors are appointed.

18.25.5.3. Considers pre-deployment actions for deployed aircraft to ensure adequate data storage availability (magnetic tape, data cartridge, memory) in aircraft FDR.

18.25.5.4. Establish AIP training requirements for all technicians who are responsible for maintaining FDR.

18.25.5.5. Ensure training requirements are documented.

18.25.5.6. Review FDR correspondence and ensure requests for action receive prompt attention.

18.25.5.7. Coordinate LRS support of the AIP program. Monitor AIP parts on order, validate document numbers, submit supply assistance letters when necessary, and ensure support equipment is available.

18.25.5.8. Ensure maintenance activities are downloading data in a timely manner.

18.25.6. Maintenance activities responsible for FDR systems will:

18.25.6.1. Download data and send to applicable agency. Back-up copies of downloaded files will be stored at the unit until confirmation of receipt from applicable agency. Include the aircraft serial number, reason for FDR download, date/location from which the FDR data was transferred/ mailed, and any pertinent information.

18.25.6.2. Be familiar with aircraft special inspection requirements in applicable aircraft -6 inspection technical order for downloading FDR.

18.25.6.3. Use FDR data for troubleshooting other aircraft systems using applicable aircraft technical order (FDR with direct parameter display capability).

18.25.7. Applicable weapon system program office, ANG/LGM, MXG/CC, or wing safety office may direct the download of any aircraft FDR for any reason other than mishap investigation. In case where the mishap investigation directs FDR data removal, adhere to procedures contained in AFI 91-204.

18.26. Engine Run Training and Certification Program.

18.26.1. A comprehensive engine run certification program will be developed and strictly enforced to prevent safety mishaps and potential loss of life. All maintenance personnel authorized to start and operate aircraft engines, auxiliary power units (APUs), and uninstalled engines will be trained and certified to operate engines at TO determined power settings. Aircraft engine motoring will only be performed by qualified engine run personnel. **EXCEPTION:** HH60G maintenance personnel qualified through on-the-job training (OJT) may motor engines as long as the rotor brake will prevent the rotors from turning. The MXG/CC is responsible for ensuring an effective engine run certification program is developed. The following minimum requirements will be used to certify engine run personnel:

18.26.1.1. The Maintenance training. The MXG/CC will appoint a Unit Engine Run Program Manager, preferably within the engine shop, for the management and development of the engine run certification program. Maintenance training, in coordination with SMEs, will administer the tests and maintain the engine run certification test question bank. Tests may be automated.

18.26.1.2. Pre-run training is designed to prepare the trainee for successful completion of initial engine-run training. It will be conducted in the trainees workcenter through OJT. As a minimum, pre-run training should include:

18.26.1.2.1. An evaluation by immediate supervisor or production supervisor to determine the individual's level of maturity and experience prior to being selected for engine-run training.

18.26.1.2.2. The trainee will review and become familiar with engine-run operations to include emergency procedures in accordance with the applicable aircraft dash one and engine run checklist.

18.26.2. Engine Run Personnel. Prior to entering engine run training, ensure personnel meet the following requirements:

18.26.2.1. Be a minimum of SrA and have a minimum five-skill level. The MXG/CC may waive qualified five-skill level personnel for critical manpower shortages.

18.26.2.2. Acquired at least 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment).

18.26.2.3. Prerequisites for qualification to operate aircraft Auxiliary Power Unit (APU), Gas Turbine Compressor (GTC)/Air Turbine Motor (ATM), or Auxiliary Power Plant (APP) as applicable.

18.26.2.3.1. Familiar with aircraft marshalling signals.

18.26.2.3.2. Completed all applicable courses.

18.26.2.3.3. Qualified in normal and emergency brake system operation.

18.26.2.3.4. Qualified in basic radio and interphone systems operation.

18.26.2.3.5. Have completed the appropriate egress familiarization course.

18.26.3. **Certifiers.** Aircraft engine-run certifying officials will hold the rank of master sergeant or above and possess one of the following AFSCs: 2A671A/B, 2A571/2, 2A373X, or be a fully qualified/certified contractor or CET/Roving representative. The group commander may waive highly qualified technical sergeants. All certifiers will have a minimum of one year engine run experience on the applicable MDS and engine (Type, Make, Series, Modification (TMSM)). Instructor pilots (IP) or Instructor Flight Engineers (IFE) can also be used as certifiers during the practical engine run demonstration.

18.26.4. **Instructors.** Individuals selected as instructors will hold the rank of staff sergeant or above and possess a 7-skill level in one of the following AFSCs 2A6X1A/B, 2A5X1/2, or 2A3X3X, a qualified contractor, or be a CET/Roving representative. **NOTE:** AFI 11-218, applicable aircraft and engine TOs, applicable commercial aircraft/engine operating procedures, and special test project engineering procedures (if applicable) will be used to develop engine run certification training programs.

18.26.5. The initial engine run certification program will consist of three phases (Each phase will be successfully completed before progressing to the next phase):

18.26.5.1. Phase 1 is academic training. Instruction will include:

18.26.5.1.1. General aircraft familiarization to include, as a minimum, basic MDS airframe characteristics, aircraft safe-for-maintenance procedures, cockpit configuration and systems, egress, engine, and aircraft system/subsystems operation.

18.26.5.1.2. A thorough review of applicable TO procedures with emphasis on notes, cautions, warnings, normal emergency brake system operation, and emergency aircraft egress.

18.26.5.1.3. Engine/APU operation, to include normal operational parameters and limitations.

18.26.5.1.4. Ensuring aircraft, engine, and APU emergency procedures are committed to memory. Instructors must ensure that students have full understanding and knowledge of warnings, cautions and notes in the maintenance technical orders. Give students a written examination to demonstrate complete understanding of emergency procedures and engine/airframe limitations.

18.26.5.1.5. Ultra high frequency (UHF)/very high frequency (VHF) radio operation, air traffic control (ATC) tower procedures, and emergency radio transmissions.

18.26.5.1.6. A two part closed book examination consisting of the following:

18.26.5.1.6.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent.

18.26.5.1.6.1.1. Students will successfully complete part I before taking part II.

18.26.5.1.6.2. Part II - Students will be given a written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent. The normal procedures test will include 30 questions as a minimum. Questions will include limitations, responses to abnormal conditions, communications and precautions (warnings, cautions, and notes). The questions may be multiple choice or fill-in-the-blank.

18.26.5.1.7. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.5.1.8. Students will not be given the same Part II test during re-testing efforts.

18.26.5.1.9. After a second failure of either test, the SQ/CC must authorize personnel to retest and continue in the program.

18.26.5.2. Phase 2 is simulator training. All maintenance personnel requiring engine run certification will receive simulator training on each specific aircraft MDS and APU. Training will be accomplished in an ATD, CPT, simulator, or approved FTD trainer. If the weapon system specific trainer is not available, a waiver may be requested through ANG/LGMM to accomplish “dry run” training on an aircraft. Training will include ATD familiarization, at least three simulated normal engine starts and runs, and a demonstration of engine and other aircraft systems emergency procedure knowledge. Ensure that technical order boldface items and critical engine operating limitations are committed to memory. Instructors will evaluate the student on response time and ability to handle emergency situations.

18.26.5.2.1. As a minimum, students will demonstrate sufficient knowledge and proficiency in the following areas:

18.26.5.2.1.1. Proper run clearance procedures.

18.26.5.2.1.2. UHF/VHF radio operation, air traffic control (ATC) tower procedures, and emergency radio transmissions.

18.26.5.2.1.3. Normal APU/engine start, run, and shutdown procedures.

18.26.5.2.1.4. Normal augmentor operation or thrust reverser (when applicable).

18.26.5.2.1.5. Aircraft systems/subsystems normal operating parameters.

18.26.5.2.1.6. Ensure TO emergency bold face items are committed to memory. Instructors will evaluate the student on response time and ability to handle emergency situations. Proper egress procedures.

18.26.5.3. Phase 3 consists of practical demonstration and observation and in the aircraft with an engine run certifying official. If the individual running the aircraft is in training status, the certifier will maintain visual contact and voice communication via the intercom system. For large aircraft, the certifier will be in the cockpit. For fighter type aircraft, it is preferable to conduct the evaluation in a hush house, sound suppresser, or on a trim pad. As a minimum, the student will demonstrate successful completion of the following areas without any discrepancies based on a go/no-go standard:

18.26.5.3.1. Proper run clearance procedures.

18.26.5.3.2. UHF/VHF radio operation, ATC tower procedures, and emergency radio transmissions.

18.26.5.3.3. Normal APU/engine start, run, and shutdown procedures, including notes, cautions, and warnings.

18.26.5.3.4. Normal augmentor or thrust reverser operation when applicable, including notes, cautions, and warnings.

18.26.5.3.5. Aircraft systems/subsystems normal operating parameters, including notes, cautions, and warnings.

18.26.5.3.6. Ensure TO emergency bold face items are committed to memory. Instructors will

evaluate the student on response time and ability to handle emergency situations.

18.26.5.3.7. Proper egress procedures.

18.26.5.3.8. The student must successfully complete a test developed from engine run technical data, on emergency and normal operating procedures. This test will consist of a minimum of 30 questions and will be different than the Phase 1 test. The minimum passing score is 100 % on emergency procedures, and 90 % on the remainder of the questions, corrected to 100 %. Failure to achieve a passing score requires further training before re-testing. Use a new set of questions when re-testing.

18.26.5.3.9. Accomplish at least two engine runs (engine start to engine shutdown) to ensure that the individual is proficient and to confirm the adequacy of Phase 2 training. Failure to demonstrate proficiency during the practical evaluation requires further training based on the certifying official's determination of deficiencies. Certify individuals after successful completion of Phase 3 training and a minimum time of 1 year on the MDS. **NOTE:** For vertical lift aircraft, maintenance personnel are not authorized to operate installed engines above ground idle and are not permitted to start and run-up vertical lift aircraft that will not operate without rotor. On rotary wing aircraft, simulator or CPT training is not required for initial engine run qualification.

18.26.6. Trim Box Requirements. For units possessing F-15 or F-16 aircraft equipped with F100-PW-100 or -200 engines, engine trim box operators for engine trim operation will be certified to the fully qualified level. Completion of engine run training phase 1 for the applicable aircraft (F-15 or F-16) and a supervisor's evaluation constitutes certification. Supervisors will evaluate and re-certify personnel annually.

18.26.6.1. The maintenance supervisor may waive FTD for previously qualified personnel based on the individual's experience. Use appropriate ATS products to manage this certification. Before engine start, the aircraft operator and trim crew will review all emergency procedures and critical engine limits.

18.26.6.2. The aircraft operator has the primary responsibility for the overall safety of the trim operation. The engine run operator must be knowledgeable of emergency procedures and take immediate corrective action should a problem occur.

18.26.6.3. The trim box operator is responsible for the trim procedure. Operators ensure that they trim the engine to the correct parameters and verify the trim targets with the aircraft operator during the trim operation. **NOTE:** Personnel performing engine maintenance ground runs will fasten seat belts/shoulder harnesses, as applicable, IAW with technical data. Maintenance personnel operating fighter type aircraft are exempt from using seat belt and shoulder harness during engine maintenance runs.

18.26.7. Annual recertification for certifiers and engine run qualified personnel will be accomplished by successfully completing the written test (Part I and Part II) administered by the Maintenance Training and demonstrating knowledge of normal and emergency procedures to a certifying official by operating one of the following: ATD, CPT, authorized TD trainer (if assigned or available), or aircraft as appropriate.

18.26.7.1. Failures.

18.26.7.1.1. Personnel failing the written examination will receive additional instruction before

being re-tested.

18.26.7.1.2. Students will not be given the same Part II test during re-testing efforts.

18.26.7.1.3. After a second failure of either test, the individual will be decertified. The SQ/CC must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

18.26.7.2. Certified individuals who PCS to the same MDS, and engine TMSM, must be approved by the MXG/CC and complete an initial evaluation by a certifying official prior to becoming run qualified at the gaining base.

18.26.7.3. A certifier will conduct an initial evaluation that includes, as a minimum, familiarization of local procedures and requirements.

18.26.8. Aircraft Auxiliary Power Unit (APU), GTC, or APP Operation Training. The following requirements and standards apply to qualifying maintenance personnel on operating the aircraft APU, GTC, and APP:

18.26.8.1. A task certified 3-level or higher maintenance AFSC is required to operate the APU, GTC, or APP.

18.26.8.2. When conducting initial operator qualification training for APU, GTC, or APP, use the applicable video or other training program when available.

18.26.8.3. A two part closed book examination consisting of the following:

18.26.8.3.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent.

18.26.8.3.2. Students will successfully complete part I before taking part II.

18.26.8.3.3. Part II - Students will be given a written examination covering normal APU, GTC, APP run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

18.26.8.4. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.8.5. Students will not be given the same Part II test during re-testing efforts.

18.26.8.6. After a second failure of either test, the Squadron commander must authorize personnel to retest and continue in the program.

18.26.8.7. Personnel must then accomplish an on-equipment practical evaluation for certification completion.

18.26.8.8. Recertification is required annually, but is not required if the individual is engine run certified and has maintained annual engine-run certification requirements.

18.26.9. Documentation. Qualifications of engine/APU run certifiers, engine/APU run certified personnel, and trim-box operators will be documented in the MIS and entered on the SCR.

18.26.9.1. Units will develop an OI to track run proficiency requirements in the MIS.

18.26.9.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified.

18.26.10. Proficiency.

18.26.10.1. Engine runs. Individuals must perform one engine run every 90 days and successfully pass a written emergency procedures test every 6 months to maintain proficiency requirements for maintenance personnel authorized to operate engines.

18.26.10.1.1. All maintenance personnel required by technical data to occupy the cockpit during maintenance runs are given credit for running an engine. Workcenter supervisors and individual engine operators are responsible for ensuring that they meet this requirement.

18.26.10.1.2. The emergency procedures test is tracked in the MIS and requires a 100% score to pass. Personnel who do not take, or fail to pass, the 6-month emergency procedures test will not operate engines until they meet testing requirements. Supervisors determine if training is required before re-testing.

18.26.10.2. Trim box operation. Supervisors will evaluate and re-certify personnel semiannually.

18.26.10.3. APU operation. All personnel who operate aircraft APUs/GTCs will complete a one-time course.

18.26.11. Maintenance personnel will only taxi aircraft with ANG/LG/DO approval and have completed a locally developed qualification course including marshaling. Personnel authorized for taxi will complete at least one taxi every 90 days to maintain proficiency. A qualified taxi instructor will re-evaluate personnel not maintaining proficiency before they perform their next aircraft taxi.

18.26.12. Engine run certification tests. The Unit Engine Run Program Manager, in coordination with Quality Assurance and Maintenance Training, will develop the engine run tests. Engine run certification tests are controlled items and will be handled IAW AFI 36-2201, and administered only by Maintenance training personnel.

18.26.12.1. Maintenance training will maintain the standard test bank for the applicable system (s). As a minimum, it will consist of 75 normal procedure questions, and one question per boldfaced emergency procedures as identified in technical data. The tests will be developed from the test bank. Both the normal and the emergency tests will be administered closed-book.

18.26.12.2. The normal procedures test will include 30 questions as a minimum. Questions will include limitations, responses to abnormal conditions, communications and precautions (warnings, cautions, and notes).

18.26.12.3. Emergency procedures test will be fill-in-the-blank.

18.26.13. Operation of Engines on Test Stands and Cells. All personnel identified for uninstalled engine and/or small gas turbine engine run qualification will complete an uninstalled engine and/or small gas turbine engine run training program prior to certification. The following minimum requirements will be met prior to receiving uninstalled and/or small gas turbine engine run certification:

18.26.13.1. Certification Requirements. Individuals will be certified for each specific engine TMSM authorized to run.

18.26.13.1.1. Be at least a staff sergeant and possess a 2A671A/B AFSC. The MXG/CC may waive highly qualified senior airman possessing a 5-skill level and a minimum of 6 months

experience on the applicable TMSM. If previously qualified on a different TMSM, the two-year experience requirement may also be waived.

18.26.13.1.2. Be authorized to perform inspections for intake and exhausts.

18.26.13.1.3. Have a minimum of 6 months current experience on each applicable TMSM, unless previously qualified.

18.26.14. Certifiers. The MXG/CC designates selected highly qualified technical sergeants or higher 2A671A/B AFSC or fully qualified/certified contractors or AFETS/CETS representatives, to serve as certifiers. The MXG/CC may waive highly qualified staff sergeants. All certifiers will have a minimum of one year engine run experience on the applicable TMSM.

18.26.15. Training. Uninstalled engine/small gas turbine engine run training will consist of three phases performed sequentially, meeting the objectives of all three, without exception, to the fully qualified level as follows: Procedural instruction, control cab (power off) training, and demonstration of engine run proficiency.

18.26.16. Instructors. Individuals selected as instructors will be 7-level staff sergeants or above with a 2A6X1A/B AFSC, a qualified contractor, or a CETS representative, and be run certified on each TMSM (if they are to be certifying officials).

18.26.16.1. Phase 1 is formal training. Instruction will include, as a minimum, the following areas:

18.26.16.1.1. General engine familiarization to include, as a minimum, basic engine description, component location, and functions.

18.26.16.1.2. Thorough familiarization of control cabs, test stands, hush houses, and T-9 fire suppression control panels (if applicable).

18.26.16.1.3. Thorough review of applicable TO procedures with emphasis on notes, cautions, and warnings.

18.26.16.1.4. Uninstalled engine and/or small gas turbine engine operation to include normal operational parameters and limitations.

18.26.16.1.5. Ensuring uninstalled engine/small gas turbine engine emergency procedures are committed to memory.

18.26.16.1.6. Local communication procedures.

18.26.16.1.7. A two-part closed book examination consisting of the following:

18.26.16.1.7.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent. Students will successfully complete part I before taking part II.

18.26.16.1.7.2. Part II - Students will be given a written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

18.26.16.1.8. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.16.1.9. Students will not be given the same Part II test during re-testing efforts.

18.26.16.1.10. After a second failure of either test, the Squadron commander must authorize personnel to retest and continue in the program.

18.26.16.2. Phase 2 is control cab evaluation. After successful completion of academic training, students will properly demonstrate the following minimum requirements to an authorized certifying official without discrepancies using the go/no-go standard:

18.26.16.2.1. Proper uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings (power off).

18.26.16.2.2. Proper uninstalled engine/small gas turbine engine bold face emergency procedures, including notes, cautions, and warnings (power off).

18.26.16.2.3. Knowledge of normal uninstalled engine/small gas turbine engine operating limits, including notes, cautions, and warnings.

18.26.16.2.4. Augmentor or thrust reverser operation, when applicable, including notes, cautions, warnings and emergency procedures.

18.26.16.3. Phase 3 is practical evaluation. Each individual will receive a practical uninstalled engine/small gas turbine run evaluation after successful completion of classroom training and control cab evaluation from an authorized certifier. As a minimum, the student will demonstrate successful completion of the following areas without discrepancies based on a go/no-go standard:

18.26.16.3.1. Proper run clearance procedures.

18.26.16.3.2. Proper emergency communication procedures.

18.26.16.3.3. Normal uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings.

18.26.16.3.4. Normal augmentor or thrust reverser operation (when applicable), including notes, cautions, and warnings.

18.26.16.3.5. Proper emergency procedure corrective actions during all bold face uninstalled engine/small gas turbine engine emergency conditions.

18.26.16.4. Recertification. Annual recertification for certifiers and engine run qualified personnel will be accomplished by successfully completing the written test (Part I and Part II) administered by the Maintenance training, control cab evaluation demonstrating knowledge of normal and emergency procedures to a certifying official, and practical engine run demonstration.

18.26.16.4.1. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.16.4.2. Students will not be given the same Part II test during re-testing efforts.

18.26.16.4.3. After a second failure of either test, the individual will be decertified. The Squadron commander must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

18.26.16.5. Proficiency. Must perform one engine run every 90 days.

18.26.17. Hush house and T-9 sound suppressor fire control panel. To ensure only qualified personnel are certified to use the hush house and T-9 sound suppressor fire control panel, the following certification requirements apply:

18.26.17.1. Only 2A671A/B personnel will be certified. The MXG/CC can waive the 7 level requirements and approve highly qualified 5 levels to be certified.

18.26.17.2. Training will consist of formal training using TOs and hands on familiarization and will include the following minimum requirements:

18.26.17.2.1. Hush house and T-9 sound suppressor fire control panel familiarization and operation.

18.26.17.2.2. Emergency procedures, including local notification procedures.

18.26.17.3. Hush house and T-9 sound suppressor supervisor/CETS personnel or designated individual will serve as the certifying official.

18.26.17.4. Hush house and T-9 sound suppressor fire control panel certified personnel require annual recertification.

18.26.17.4.1. Annual recertification requirements will be the same as initial certification requirements.

18.26.17.4.1.1. Certification will be tracked on the SCR.

18.27. IFF Mode IV Program. A Mode 4 program will be established to ensure accomplishment of Mode 4 testing. The MXG/CC / OG/CC will appoint Mode 4 managers.

18.27.1. Responsibilities:

18.27.1.1. The MXG Mode 4 manager will:

18.27.1.1.1. Establish a program to ensure accomplishment of Mode 4 testing in coordination with the OG Mode 4 manager.

18.27.1.1.2. Ensure testing and documenting procedures are followed. Local record-keeping procedures must be auditable and reportable when required.

18.27.1.1.3. Ensure procedures are in place to notify aircrew members of check results are developed.

18.27.1.2. The OG Mode 4 manager will:

18.27.1.2.1. Establish a program to ensure accomplishment of Mode 4 testing in coordination with the MXG Mode 4 manager.

18.27.1.2.2. Ensure procedures are in place to verify Mode 4 system operability.

18.27.2. Procedures for overseas operations.

18.27.2.1. Perform IFF Mode IV checks on all missions departing to overseas locations, on all overseas missions, and all missions going outside US airspace and returning. (Missions that originate in Alaskan or Hawaiian territory and do not depart US controlled airspace are viewed as if they are missions remaining in CONUS). Do not launch or enter aircraft into a contingency zone with a known inoperative MODE IV system, unless the contingency AOR has established procedures governing inoperative/degraded Mode IV capabilities or not required by the AOR.

18.27.2.2. IFF mode IV operational checks not accomplished due to lack of test equipment will be written up in the AFTO Form 781A on a red dash. The Mode IV ground operational check will be accomplished at the next location where test assets are available and mission turn-time provides maintenance the opportunity to perform the check.

18.27.3. Invalid Mode IV replies will not cause a CONUS training sortie to be aborted; however, a work order will be generated for maintenance after flight.

18.27.4. 100 percent of IFF equipped possessed aircraft will be checked every 2 months.

18.27.5. Testing data and results will be maintained for a minimum of one year.

18.27.6. OC-135 "OPEN SKIES" Aircraft are exempt from the above program when mission requirements exempt them from keying MODE 4 and are not allowed to carry classified material while performing "OPEN SKIES" related training or operational missions.

18.27.7. Testing of aircraft when initially going on alert status satisfies preflight program requirements. This eliminates unnecessary delay of aircraft launch.

18.27.8. May be combined with the Radar Warning Receiver (RWR) systems program at the MXG/CC's option.

18.28. Sortie Generation Operations (SGO). SGO is a process by which an aircraft are generated in a minimum amount of time, during peacetime or wartime, through concurrent operations that may include refueling, munitions loading/ unloading, aircraft reconfiguration, and -6 inspection and other servicing requirements, according to applicable Mission Design Series (MDS) TOs, TO 11A-1-33, and TO00-25-172. In conjunction with applicable TOs (once updated), ANG units will use the procedures in this chapter to accomplish SGO. Procedures can be compressed through pre-positioning resources and concurrent performance of tasks. Manpower for sortie production may be increased through cross utilization of skills, augmentation of key functions, and prepositioning indirect support resources in sortie generation areas. Munitions loading will be accomplished using complete MDS specific 1X-XXX-33-1-2/-2-1 TO procedures. Aircraft thru-flights will be accomplished in their entirety in accordance with MDS-specific, 1X-XXX-6 TO work cards. Abbreviated AFMC-approved -6 TO quick turn work cards may be used.

18.28.1. SGO procedures and SGOs should be built around the operational environment, mission, and expected operations for which a unit is designated to deploy or support during contingencies or taskings. SGO procedures may be used during actual contingencies, scheduled SGO exercises, and daily training. SGO includes the entire regeneration cycle for a mission capable aircraft to include any or all of the following: servicing, inspection, munitions/ammunition loading/unloading, aircraft reconfiguration, and fueling. The emphasis is to accomplish these operations in the most expeditious manner consistent with the operational environment.

18.28.2. Concurrent Servicing Operations (CSO): The simultaneous loading/unloading of munitions, fueling, aircraft reconfiguration, and may include aircraft -6 inspections, and other aircraft servicing. Other servicing may include oil, nitrogen, and hydraulic fluid. Oxygen servicing will not be accomplished during fuel servicing. CSO provide units operational flexibility in managing resources and a rapid means of generating mission ready aircraft.

18.28.3. Specific requirements for 2AXXX and 2WXXX training and qualification, and Concurrent Servicing Supervisor (CSS) training and certification are identified in paragraph 18.28.8.

18.28.4. Manpower. Commanders may train additional aircraft or munitions maintenance personnel to assist in direct sortie production activities.

18.28.4.1. Cross utilization of skilled personnel may be employed to ensure maximum productivity.

18.28.4.2. Direct sortie production functions may be augmented. Wings may develop a program to identify tasks to be performed by augmentees and train, qualify, and document training (tasks may include tank buildup, end-of-runway, etc).

18.28.5. SGO Personnel and Responsibilities.

18.28.5.1. The wing commander implements the base support plan for augmentation force to support SGO.

18.28.5.2. The MXG/CC:

18.28.5.2.1. Provides training for augmentees from base support agencies to support SGO.

18.28.5.2.2. Conducts SGO proficiency training exercises as determined by Wing commanders. Coordinates refueling and munitions requirements with the OG/CC prior to each scheduled SGO exercise.

18.28.5.2.3. May elect to arm/de-arm munitions at designated areas other than the quick check/end of runway area.

18.28.6. Concurrent Servicing Supervisor (CSS):

18.28.6.1. Person responsible for on site supervision of all aspects of fuel servicing, munitions loading /unloading, and aircraft reconfiguration while being performed concurrently. The key function requiring the CSS is fueling. When no fueling is taking place, a CSS is not required.

18.28.6.2. Must be at least a 7-level with a maintenance (2AXXX or 2WXXX) Air Force Specialty Code (AFSC) with at least one year of experience on the MDS.

18.28.6.3. Is a safety supervisor who will supervise only one CSO at a time and will perform no other functions.

18.28.6.4. Will be designated on the special certification roster and shall receive familiarization training on safety requirements and potential hazards of concurrent servicing operations and be certified as required by local maintenance/training directives. Reference TO 11A-1-33 procedures for handling and maintenance of explosives-loaded aircraft. Reference TO 00-25-172 for flightline servicing operations.

18.28.7. SGO Locations. SGOs will be conducted in approved explosives and fuels sited areas.

18.28.8. SGO Proficiency-Training Exercises. The purpose of these exercises is to demonstrate unit capability to generate a continuous sustained flow of combat sorties. These exercises are the unit's opportunity to practice total combat sortie generation.

18.28.8.1. Exercises will be determined by the Wing commanders.

18.28.8.2. The duration of the exercise will be determined by the Wing commanders.

18.28.8.3. The MXG/CC will determine the number of aircraft scheduled to optimize aircrew and sortie generation training. WMP-5 rates (or higher) should be used for planning generation/regeneration of sorties.

18.28.8.4. After firing inspection requirements, aircraft -6, will be performed on all stations that fired. Tools, technical data and expendables will be available at each aircraft for all simulated firings. Applicable task times will be simulated (determined locally) by the BPO crew before moving to another aircraft or task. Half-up/half-down loading procedures will be performed to show reconfiguration of aircraft after actual and simulated inspections are complete. All inspections, actual or simulated, will be documented.

18.28.8.5. Units may upload and download external fuel tanks during each exercise.

18.28.8.6. Units will perform radar warning receiver and mode 4 checks (as applicable).

18.28.9. During wing SGO exercises, aircraft turnaround time is crucial to meet sortie generation requirements. Units will develop and demonstrate the capability to perform SGO operations. The following procedures will apply:

18.28.9.1. Standard Conventional Loads (SCL) will be selected from known OPlan requirements. To optimize munitions support, the number of aircraft munitions configurations will be minimized and standardized as much as possible. Munitions will be pre-assembled to the greatest extent possible. Configuration changes may be performed during training/exercises providing the applicable functional checks are performed to ensure the safety and reliability of the weapons system.

18.28.9.2. Personnel participating in local exercises should be rotated so that all personnel are exposed to SGOs in the training environment.

18.28.10. Conventional munitions operations will be exercised (e.g. breakout, buildup, delivery, loading, resupply, etc.). Munitions support functions will be managed to support surge efforts IAW AFI 21-201. At the appropriate alert warning, predetermined loads will be assembled, preloaded as applicable, and delivered to a holding area. The munitions controlling agency, through the Munitions Liaison Officer (Senior NCO), will monitor the projected need for all-up-round munitions.

18.28.11. Each exercise aircraft should be scheduled to fly a simulated combat sortie and generated by loading a complete SCL or half up and half down a complete SCL which simulates a full SCL.

18.28.12. For each sortie flown, air to air missiles expended will be determined by shots taken, not to exceed the SCL configuration; all other external ordinance will be considered expended. Ammunition in F-16 and F-15 aircraft will be loaded as required, A-10 aircraft will be loaded when 50 percent expenditures are reached unless mission requirements dictate reloading (this may be simulated by hooking up all required items and taking the standard loading time).

18.28.12.1. Actual expenditures will be tracked using AF form 2434 or a locally developed form. The Operations Group will develop a system to track and report all simulated expenditures i.e. missile shots, bomb drops (by type), chaff/flare dispensed for each sortie flown. At the end of the flying day the form will be forwarded to the Munitions Element for reporting.

18.28.13. Training and Documentation Requirements.

18.28.13.1. The maintenance supervisor will establish a coordinated training plan that includes aircraft maintenance personnel, weapons load crews, and fuel specialists.

18.28.13.2. Aircraft maintenance personnel must receive training on SGO concepts and the squadron's plan. Knowledge of the plan is the primary means of preventing mishaps. Supervisors will receive training on the plan, their part in it, and hazard/safety considerations.

18.28.13.3. APG trainers will be responsible for the training and documentation of all 2AXXX aircraft maintenance personnel.

18.28.13.4. WSS will be responsible for the training and documentation of all assigned weapons load crews in accordance with Chapter 16.

18.28.13.5. Supervisors will ensure training is documented in MIS.

18.29. Combat Readiness Training Centers (CRTC). Training Centers have ground support equipment and maintenance shop facilities IAW AFMAN 91-201; Para 6.12.1. Ensure applicable site plans & maps are maintained within the flight to be used by deployed forces. These forces need the use of CRTC bases and gunnery ranges for short term exercises and annual deployments. CRTC personnel maintain the support equipment and facilities and do not have aircraft or maintenance personnel for direct support of the deployed unit. Deployed units operate under their own management procedures.

18.29.1. The CRTC has shops and equipment needed to support limited maintenance. Once issued to the deployed unit, the maintenance of the support equipment and operation of the shops is the responsibility of the deployed unit. However, the responsibility for the assigned equipment remains with the CRTC.

18.29.2. The CRTC is organized as a consolidated maintenance function. Due to its small size, several management functions may be assigned to one individual. CRTC personnel will not be integrated into the organization of deployed units. The CRTC remains a separate and independent function.

18.29.3. The maintenance chief is the Chief Enlisted Manager (CEM) for the CRTC and establishes management procedures following the guidelines of this publication. The CEM will:

18.29.3.1. Publish necessary OIs.

18.29.3.2. Publish a directive with responsibilities and requirements for the CRTC and deployed units.

18.29.3.3. Ensures deployed unit maintenance supervisors are briefed as a minimum on their responsibilities for the use of the facilities, safety, equipment and their relationship to the CRTC.

18.29.3.4. Ensure deployed units use their own supply support to the maximum extent possible.

18.29.3.5. Ensure assigned support equipment and facilities are maintained.

18.29.3.6. Ensure supply discipline by assigned personnel.

18.29.3.7. Establish a quality assessment program.

18.29.3.8. Oversees the CRTC maintenance safety program.

18.29.3.9. Ensures compliance with FOD program.

18.30. Forward Operating Location (FOL), Fort Drum, NY. The mission of this unit is to provide effective combat readiness training to all Northeast fighter units for all aspects of

maintenance, support, and aircrew combat training pertaining to live ordinance training. Additionally the FOL produces sorties for Northeast fighter units without the need for the using unit to deploy their personnel. FOL personnel will perform thruflight, launch, recovery, minor repair, and service of deployed aircraft, on/off equipment maintenance and support equipment maintenance within the capability of assigned personnel, equipment, and facilities. Personnel will also be tasked to load specific munitions items once designated by Detachment Commander, (DETCO) and task certified. Cross utilization training is used exclusively by the detachment as prescribed in paragraph 1.19. of this instruction.

18.30.1. Maintenance Organization. Maintenance Management latitude is given to the Production Supervisor (Pro Super). Detachment manning based on assigned equipment, scheduled sorties, and available facilities at the detachment. Unit's schedule sorties through the Pro Super that are within the capabilities of assigned personnel. The Pro Super will manage, schedule, plan, control, and direct the use of all maintenance resources and be responsible for the following:

18.30.1.1. Ensure a quality assessment program is developed.

18.30.1.2. Control the assignment and use of maintenance personnel. Ensure all work shifts are adequately manned.

18.30.1.3. Coordinate with the range facility on the monthly schedule of aircraft that will utilize the FOL.

18.30.1.4. Control assignment and use of facilities and equipment at the detachment.

18.30.1.5. Administer the detachment Safety program.

18.30.1.6. Ensure supply management procedures are accomplished.

18.30.1.7. Monitor the detachment Load Crew Training program.

18.30.1.8. Establish an Oil Analysis Program.

18.30.1.9. Establish a Maintenance Training Program.

18.30.1.10. Manage the detachment Financial Management program.

18.30.1.11. Monitor and coordinate requirements to support the maintenance mission and include the plans, programs, and host-tenant agreements.

18.30.1.12. Control the Hot Refueling program.

18.30.1.13. Provide liaison between the detachment, deploying unit MXG personnel, and Fort Drum personnel. Provide support in nationally recognized Global Exercises with all flying units and support units that are deployed to Fort Drum.

18.30.1.14. Develop and administer a FOD program for the detachment.

18.30.1.15. Ensure TMDE is calibrated IAW TO 00-20-14.

18.30.1.16. Work in conjunction with Detachment Commander to ensure maintenance activities are within the means of assigned personnel.

18.30.1.17. Ensure an effective CTK and Bench Stock System is utilized.

18.30.1.18. Assign vehicle control officers for assigned government vehicles at detachment.

18.30.1.19. Establish ADPE account for detachment. Ensure a LAN system is established with assigned unit for effective accountability of assigned equipment, CAS/B, and personnel and to ensure effective communications is established with host unit and ANGRC.

18.30.1.20. Develop and publish necessary OIs.

18.30.1.21. Develop a program for accountability of all munitions and fuels that are utilized at the attachment. Units utilizing the FOL for live ordnance training must coordinate with detachment personnel for all flying activities.

18.30.2. The detachment commander will authorize production inspectors.

18.31. Alert Detachment. Management latitude is given to the Chief Enlisted Manager (CEM) in recognition of the factors affecting each alert detachment. The detachment provides for immediate launch, recovery, repair, and service of alert aircraft; on/off equipment and support equipment maintenance within the capability of assigned personnel, equipment, and facilities.

18.31.1. Maintenance Organization. Detachment manning is based on workload, aircraft type, and location of alert detachments. Each detachment maintenance organization will have a CEM who will ensure its efficient operation.

18.31.2. The CEM manages the detachment maintenance complex. The CEM will plan, schedule, control, and direct the use of all maintenance resources and be responsible for the following:

18.31.2.1. Ensure a quality assessment program is established.

18.31.2.2. Control the assignment and use of maintenance personnel. Ensure all work shifts are adequately supervised.

18.31.2.3. Coordinate with the detachment Operation activities in establishing maintenance support requirements.

18.31.2.4. Ensure requirements to support the maintenance mission are included in plans, programs, and host-tenant agreements.

18.31.2.5. Control assignment and use of maintenance facilities and equipment at the detachment.

18.31.2.6. Administer the detachment safety program.

18.31.2.7. Designate production inspectors.

18.31.2.8. Manage the detachment financial program.

18.31.2.9. Establish a maintenance training program.

18.31.2.10. Ensure supply management procedures are accomplished.

18.31.2.11. Monitor the load crew certification program.

18.31.2.12. Establish an Oil Analysis Program for assigned equipment.

18.31.2.13. Set up a debriefing program.

18.31.2.14. Comply with calibration requirements established by either the host base or supporting unit.

18.31.2.15. Establish necessary security programs.

18.31.2.16. Provide liaison between the detachment and parent unit maintenance program.

18.31.3. The Alert section will consist of selected crew chiefs and personnel who have been task-qualified to perform preflight, postflight, servicing, launching, (to include arm/dearm of missiles) etc.

18.31.4. The Support section consists of specialists and weapons load crew personnel qualified

to perform both on- and off-equipment maintenance and task-qualified to assist in alert section duties as required.

18.31.5. Weapons Load Crews consist of personnel task-qualified to support the unit mission as outlined in Chapter 3.

18.32. Torque Wrench Calibration Site. Units listed in T.O.00-20-14 and approved by the Air Force Metrology and Calibration (AFMETCAL) Det 1 as a Limited User/Owner Torque Calibration/Repair Capability will ensure torque devices are calibrated per any applicable Calibration and Measurement Summary (CMS) or T.O. 33K-1-100-1/2.

18.32.1. Only approved Torque Calibration Standards or equivalent equipment meeting accuracy requirements as per calibration procedures will be used to certify torque devices. Torque Calibration Standards must be calibrated by an AFMETCAL program PMEL.

18.32.2. Only torque devices owned by the organization will be calibrated on this site. Torque devices beyond the capability of the organization to calibrate, will be sent to the Unit's supporting PMEL and will be included as part of their PMEL TMDE inventory.

18.32.3. Ensure all personnel performing torque calibrations have been properly trained. At a minimum, an individual must have had training either by possessing a 2P0X1 AFSC, have attended Torque Wrench Calibration Course # E2RST2P031 002 or have successfully participated in an On-the-Job training program provided by a technician with the above qualifications.

18.32.4. Maintain a Certification Roster of all qualified personnel performing torque calibrations.

18.32.5. Ensure there is a capability (Chart Recorder) to monitor and record the environment in the calibration area. The environment must be maintained at a temperature of $73^{\circ}\text{F} \pm 9^{\circ}\text{F}$ with Relative Humidity between 15 and 70% RH during the 24 hour period from the time torque devices are introduced into the calibration area until the calibration procedure is completed. Environmental records must be kept on file for a minimum of 6 months.

18.32.6. Ensure a complete inventory of all torque devices calibrated at unit level is maintained current, and it is made available on request by AFMETCAL Det 1. This inventory should be kept in an automated format to facilitate scheduling and data collection.

18.32.7. The Torque Calibration Site supervisor will develop an internal Quality Program (QP) specifically tailored to the torque calibration function. At a minimum, establish a process to randomly select 3% of the scheduled monthly calibrations (but not less than two (2) certified torque devices per month) for a Quality Review (QR) and every six months accomplish a Process Review (PR) on each qualified technician. The QR is an internal inspection where a separate qualified technician re-accomplishes the calibration on a recently certified torque device prior to it leaving the calibration area and returning it to the customer. The PR is an internal review where a separate qualified technician observes the overall process in action; including training/qualifications, documentation, calibration standard status, and technical data. The supervisor will manage the internal Quality Program and maintain a log/record of all QRs/PRs. Supervision shall initial or sign the log/record when findings result in failure and initiate corrective action as necessary. The log/record will be maintained for a minimum of two (2) years.

18.32.8. Provide maintenance data collection (MDC), if requested, in a format determined by AFMETCAL Det 1.

18.32.9. Participate in AFMETCAL Det 1's Proficiency Testing. Testing will consist of performing measurements on an artifact provided by the Air Force Primary Standards Laboratory (AFPSL) by applying the same calibration methods used to calibrate their own torque devices. Frequency of proficiency testing at each site will be determined at the discretion of AFMETCAL Det 1 (from zero (0) to two (2) times annually). AFMETCAL Det 1 will notify the units in advance and will provide specific instructions as to how to conduct the testing, report results and shipping of the artifact.

18.32.10. Torque Calibration Sites will be subject to random evaluations by AFMETCAL Det 1.

18.33. KC-135 Single Integrated Operations Plans (SIOP). If KC-135 units have a requirement for SIOP duties, they will establish a written plan or OI outlining as a minimum:

18.3.1. Crew Chief qualifications.

18.3.2. Minimum "alert bag" contents.

18.34. Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) Magnetic Chip Detector Analysis Program (MCDP).

18.34.1. General This section establishes procedures for management of the Aircraft Engine Magnetic Chip Detector Analysis Program for all assigned F110-GE-100/-129 engines.

18.34.1.1. The Propulsion (primary) and NonDestructive Inspection (alternate) Supervisors will be the point of contacts for SEM/EDX related matters.

18.34.1.2. All organizations requiring recurring chip detector analysis service shall identify by letter primary and alternate MCDP monitors for their unit. The letter will be updated when personnel change.

18.34.1.3. All newly assigned MCDP monitors will attend a briefing by the Propulsion Shop. This briefing will cover the duties and responsibilities of all MCDP monitors.

18.34.1.4. All MCDP Monitors or their representatives will ensure the following:

18.34.1.4.1. Magnetic Chip Detectors (MCD) are submitted for debris analysis for their aircraft and assigned engines as per applicable technical order.

18.34.1.4.2. Ensure MCD debris analysis is forwarded with the following information: squadron, rank/name, aircraft serial number, engine serial number, total engine hours, date/time, visual chips, reason for analysis request and sortie number.

18.34.2. The Propulsion Shop will:

18.34.2.1. MCD analyses that indicate significant levels of M50 or other critical materials will be immediately reported to the MOC. MOC will in-turn contact the owning squadron to arrange for immediate return of affected aircraft to home station.

18.34.2.2. Immediately notify test cell personnel of analysis results for engines in test cell.

18.34.2.3. Notify the MOC during periods of SEM/EDX downtime.

18.34.3. Aircraft Maintenance Squadrons (AMXS) Supervision will:

18.34.3.1. Be responsible for monitoring the MCDP on the flight-line.

18.34.3.2. Ensure visual inspection of the MCD is performed IAW applicable technical orders.

18.34.3.3. Ensure that one clean MCD is available for each detector submitted for analysis.

18.34.3.3. Ensure MCDs are submitted for analysis within 75 minutes after engine shutdown.

18.34.3.4. Ensure current SEM/EDX status code is maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results. The following will be used:

Level 0. Fully MC - No chips detected.

Level 1. Fully MC - Chips detected but within limits.

Level 2. "Warning" - Material amounts exceeded.

18.34.3.5. Coordinate with MOC to recall aircraft determined to be flying with unacceptable levels of debris.

18.34.4. The MOC will:

18.34.4.1. Serve as primary communication link for transfer of SEM/EDX information between the Propulsion Shop and its customers.

18.34.4.2. Ensure current SEM/EDX status code is maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results.

18.34.4.3. Immediately notify the owning AMXS/Flying Squadron (transient aircraft) when MCD analysis indicates unacceptable levels of debris so they can coordinate recall of affected aircraft.

18.34.5. Cross Country/Deployed MCDP Analysis Requirements.

18.34.5.1. NDI will be notified prior to deployments to determine if MCDP support will be available at the deployed location.

18.34.5.2 If it is determined that MCDP is not available, visual MCD inspections will be performed IAW applicable engine directives.

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Attachment 1
GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

Table A1 Forms Cited

AF Form 601 *Equipment Action Request*
AF Form 623A *On-the-Job Training Record Continuation Sheet*
AF Form 664 *Aircraft Fuels Documentation Log*
AF Form 797 *Job Qualification Standard Continuation*
AF Form 864 *Daily Requirement and Dispatch Report*
AF Form 861 *Base/Transient Job Control Number Register*
AF Form 979 *Danger Tag*
AF Form 1032 *WRM Spare List*
AF Form 1067 *Modification Proposal*
AF Form 1098 *Special Tasks Certification and Recurring Training*
AF Form 1199 *USAF Restricted Area Badge*
AF Form 1297 *Temporary Issue Receipt*
AF Form 1492 *Warning Tag*
AF Form 1800 *Operators Inspection Guide and Trouble Report (General Purpose Vehicles)*
AF Form 1996 *Adjusted Stock Level*
AF Form 2001 *Notification of TCTO Kit Requirements*
AF Form 2005 *Issue/Turn-In Request*
AF Form 2096 *Classification/On The Job Training Action*
AF Form 2400 *Functional Check Flight Log*
AF Form 2406 *Maintenance Preplan*
AF Form 2407 *Weekly/Daily Flying Schedule Coordination*
AF Form 2408 *Generation Maintenance Plan*
AF Form 2409 *Generation Sequence Action Schedule*
AF Form 2410 *Inspection/TCTO Planning Checklist*
AF Form 2411 *Inspection Document*
AF Form 2413 *Supply Control Log*
AF Form 2419 *Routing and Review of Quality Control Reports*
AF Form 2420 *Quality Assurance Inspection Summary*
AF Form 2426 *Training Request and Completion Notification*
AF Form 2430 *Specialist Dispatch Control Log*
AF Form 2434 *Munitions Configuration and Expenditure Document*
AF Form 2435 *Load Training and Certification Document*
AF Form 2521 *Turn-Around Transaction Log*
AF Form 3215 *Communications-Computer Systems Requirements Document*
AF Form 3525 *CRB Modification Requirements and Approval Document*
AFTO Forms 15 *Air Munitions Serviceability and Location Record*
AFTO Form 22 *Technical Order Improvement Report and Reply*
AFTO Form 27 *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO*
AFTO Verification Record/Approval
AFTO Form 95 *Significant Historical Data*
AFTO Form 97 *Aerospace Vehicle Battle Damage Repair Debrief/Assessment Record*
AFTO Form 97A *Aerospace Vehicle Battle Damage Repair Debrief/Assessment Record*
(Continuation Sheet)

AFTO Form 103 *Aircraft/Missile Condition Data*
 AFTO Form 135 *Source, Maintenance and Recoverability Code Change Request*
 AFTO Form 242 *Nondestructive Inspection Data*
 AFTO Form 244 *Industrial/Support Equipment Record*
 AFTO Form 349 *Maintenance Data Collection Record*
 AFTO Form 350 *Reparable Item Processing Tag*
 AFTO Form 391 *Parachute Log*
 AFTO Form 392 *Parachute Repack, Inspection and Component Record*
 AFTO Form 623 *Individual Training Record*
 AFTO Form 781 *AFORMS Aircrew/Mission Flight Data Document*
 AFTO Form 781A *Maintenance Discrepancy and Work Document*
 AFTO Form 781C *Avionics Configuration and Load Status Document*
 AFTO Form 781D *Calendar and Hourly Item Inspection Document*
 AFTO Form 781F *Aerospace Vehicle Flight Report and Maintenance Document*
 AFTO Form 781H *Aerospace Vehicle Flight Status and Maintenance Document*
 AFTO Form 781J *Aerospace Vehicle - Engine Flight Document*
 AFTO Form 781K *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*
 DD Form 1348-1A *DoD Single Line Item Release/Receipt Document*
 DD Form 1348-6 *DoD Single Line Item Requisition System Document*
 DD Form 1610 *Request and Authorization for TDY Travel of DoD Personnel*

Table A2 AFOSH Standards

48-1, Respiratory Protection Program
 48-8, Controlling Exposures to Hazardous Materials
 48-9, Radio Frequency Radiation (RFR) Safety Program
 48-19, Hazardous Noise Program
 48-101, Aerospace Medical Operations
 48-137, Respiratory Protection Program
 91-5, Welding, Cutting and Brazing
 91-25, Confined Spaces
 91-38, Hydrocarbon Fuels General
 91-45, Hazardous Energy Control and Mishap Prevention Signs and Tags
 91-46, Materials Handling and Storage Equipment
 91-50, Communications Cable, Antenna and Communications - Electronic (C-E) Systems
 91-66, General Industrial Operations
 91-90, Precision Measurement Equipment Laboratory (PMEL)
 91-100, Aircraft Flight Line Ground Operations and Activities
 91-110, Nondestructive Inspection and Oil Analysis Program
 91-119, Process Safety Management (PSM) of Highly Hazardous Chemicals
 91-12, Machinery
 91-32, Emergency Shower and Eyewash Units
 91-44, Safety Color Coding, Labeling, and Marking For Piping Systems
 91-45, Hazardous Energy Control and Mishap Prevention Signs and Tags
 91-501, AF Occupational Safety Standard
 91-67, Liquid Nitrogen and Oxygen Safety⁷

91-68, Chemical Safety
161-2, Industrial Ventilation
161-17, Standardized Occupational Health Program
161-20, Hearing Conservation Program
161-21, Hazard Communication

Table A3 Air Force Instructions and Pamphlets.

AFI 10-201, Status of Resources and Training System
AFI 10-207, Command Post
AFI 10-215, Personnel Support For Contingency Operations (PERSCO)
AFI 10-229, Responding to Severe Weather Events
AFI 10-401, Operations Plan and Concept Plan Development and Implementation
AFI 10-403, Deployment Planning
AFI 10-404, Basic Support Planning
AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures
AFI 10-703, Electronic Warfare Integrated Reprogramming
AFI 11-206, General Flight Rules
AFI 11-218, Aircraft Operation and Movement On The Ground
AFI 11-235, Forward Area Refueling Point (FARP) Operations
AFI 11-301, Aircrew Life Support (ALS) Program
AFI 11-401, Flight Management
AFI 13-201, Air Force Airspace Management
AFI 16-402, Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination
AFI 21-103, Equipment Inventory, Status, and Utilization Reporting
AFI 21-104, Selected Management of Selected Gas Turbine Engines
AFI 21-105, Aerospace Equipment Structural Maintenance
AFI 21-110, Engineering and Technical Services, Management and Control
AFI 21-112, Aircrew Egress System Maintenance
AFI 21-118, Improving Aerospace Equipment Reliability and Maintainability
AFI 21-123, The Air Force Repair Enhancement Program
AFI 21-124, Air Force Oil Analysis Program
AFI 21-129, Two Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment
AFI 21-201, Management and Maintenance of Non-Nuclear Munitions
AFI 21-401, Engineering Data Storage, Distribution, and Control
AFI 21-403, Acquiring Engineering Data
AFI 23-101, Centrally Managed Equipment
AFI 23-202, Buying Petroleum Products and Other Supplies and Services Off-Station
AFI 23-204, Organizational Fuel Tanks
AFI 24-301, Vehicle Operations
AFPAM 24-317, Vehicle Control
AFI 25-101, War Reserve Materiel (WRM) Program Guidance and Procedures
AFI 25-201, Support Agreements
AFI 31-209, The Air Force Resource Protection Program
AFI 31-401, Information Security Program Management

AFI 32-4001, Disaster Preparedness Planning and Operations
AFI 32-7001, Environmental Budgeting
AFI 32-7002, Environmental Information Management System
AFI 32-7005, Environmental Protection Committees
AFI 32-7040, Air Quality Compliance
AFI 32-7041, Water Quality Compliance
AFI 32-7042, Solid and Hazardous Waste Compliance
AFPAM 32-7043, Hazardous Waste Management Guide
AFI 32-7044, Storage Tank Compliance
AFI 32-7045, Environmental Compliance Assessment and Management Program (ECAMP)
AFI 32-7061, The Environmental Impact Analysis Process
AFI 32-7064, Integrated Natural Resources Management
AFI 32-7065, Cultural Resources Management
AFI 32-7080, Pollution Prevention Program
AFI 32-7086, Hazardous Materials Management
AFI 33-106, Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System
AFI 33-115, Vol 1, Network Management
AFI 33-202, Computer Security (COMPUSEC)
AFI 33-211, Communication Security (COMSEC) User Requirements
AFI 33-212, Reporting COMSEC Deviations
AFI 33-322, Records Management Program
AFI 33-332, Air Force Privacy Act Information
AFI 33-360V1, Publication Management Program, Volume 1
AFI 34-117, Air Force Aero Club Program
AFI 36-2101, Classifying Military Personnel
AFI 36-2201, Developing, Managing, and Conducting Training
AFI 36-2115, Assignments within the Reserve Components
AFI 36-2217, Munitions Requirements for Aircrew Training
AFI 36-2232, Maintenance Training
AFI 36-2611, Officer Professional Development
AFI 36-2619, Military Personnel Appropriation Man-Day Program
AFI 36-2629, Individual Mobilization Augmentee Management
AFI 36-2818, USAF Logistics Awards Program
AFI 36-3017, Special Duty Assignment Pay (SDAP) Program
AFI 36-3209, Separation and Retirement Procedures For Air National Guard and Air Force Reserve Members
AFI 36-8001, Reserve Personnel Participation and Training Procedures
AFI 37-139, Records Disposition—Procedures and Responsibilities
AFI 37-160, Air Force Publications and Forms Management Programs - Publication Library
AFI 38-101, Air Force Organization
AFI 63-104, The SEEK EAGLE Program
AFI 63-124, Performance Based Service Contracts (PBSC)
AFI 63-1001, Aircraft Structural Integrity Program
AFI 63-1101, Modification Management
AFI 63-1201, Assurance of Operational Safety, Suitability, and Effectiveness

AFI 65-601, Volume 1, Budget Guidance and Procedures
 AFI 84-103, Museum System
 AFI 90-901, Operational Risk Management
 AFI 91-101, Air Force Nuclear Weapons Surety Program
 AFI 91-103, Air Force Nuclear Safety Certification Program
 AFI 91-104, Nuclear Surety Tamper Control and Detection Programs
 AFI 91-107, Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems
 AFI 91-112, Safety Rules for U.S. Strike Aircraft
 AFI 91-202, The US Air Force Mishap Prevention Program
 AFI 91-204, Safety Investigations and Reports
 AFI 91-205, Non-Nuclear Munitions Safety Board
 AFPAM 91-215, Operational Risk Management (ORM) Guidelines and Tools
 AFI 91-301, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Program
 AFI 91-302, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards

Table A4 Air Force Policy Directives

AFD 10-9, Lead Operating Command Weapon Systems Management
 AFD 21-1, Managing Aerospace Equipment Maintenance
 AFD 21-3, Technical Orders
 AFD 32-70, Environmental Quality
 AFD 62-4, Standards of Airworthiness for Passenger Carrying Commercial Derivative Transport Aircraft
 AFD 63-11, Modification System
 AFD 63-12, Assurance of Operational Safety, Suitability, and Effectiveness
 AFD 90-8, Environmental Safety, and Occupational Health
 AFD 91-3, Occupational Safety and Health

Table A5 Air Force Manuals

AFMAN 10-206, Operational Reporting
 AFMAN 10-401, Operations Plan and Concept Plan Development
 AFMAN 24-306, Manual For Wheeled Vehicle Driver
 AFMAN 91-201, Explosives Safety Standards
 AFMAN 23-110, USAF Supply Manual
 AFMAN 23-220, Reports of Survey For Air Force Property
 AFMAN 24-204, Preparing Hazardous Materials for Military Air Shipments
 AFMAN 32-4004, Emergency Response Operations
 AFMAN 32-4017, Civil Engineer Readiness Technician's Manual for Nuclear, Biological, and Chemical Defense
 AFMAN 33-120, Radio Frequency (RF) Spectrum Management
 AFMAN 36-2108, Airman Classification
 AFMAN 37-123, Management of Records
 AFMAN 37-126, Preparing Official Communications
 AFMAN 37-139, Records Disposition Schedule

AFMAN 64-110, Manual for Weapon Systems Warranties

Table A6 Air Force Technical Orders

TO 00-5-1, AF Technical Order System
TO 00-5-2, Technical Order Distribution System
TO 00-5-2-2, Automated Technical Order Management System
TO 00-5-15, Air Force Time Compliance Technical Order System
TO 00-5-17, Users Manual -- USAF Computer Program Identification Numbering System (CPIN)
TO 00-5-18, USAF Technical Order Numbering System
TO 00-20-1, Aerospace Equipment Maintenance General Policy and Procedures
TO 00-20-2, Maintenance Data Documentation
TO 00-20-3, Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System
TO 00-20-14, AF Metrology and Calibration Program
TO 00-20B-5, USAF Motor Vehicle and Equipment
TO 00-25-4, Depot Maintenance of Aerospace Vehicles and Training Equipment
TO 00-25-107, Maintenance Assistance
TO 00-25-172, Ground Servicing of Aircraft and Static Grounding/Bonding
TO 00-25-195, AF Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons Systems, and Equipment
TO 00-25-223, Integrated Pressure Systems and Components (Portable and Installed)
TO 00-25-240, Uniformed Repair/Replacement Criteria for USAF Support Equipment (SE)
TO 00-25-252, Certification of USAF Aircraft and Missile Welders
TO 00-25-254-1, System Manual-Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures
TO 00-25-254-2, System Manual - Comprehensive Engine Management System for DSD: D042
TO 00-35D-54, USAF Deficiency Reporting and Investigating System
TO 00-105E-9, Aircraft Emergency Rescue Information (Fire Protection)
TO 00-110A-Series, Inspection Maintenance Instruction, Storage, and Disposition of Aircraft
TO 00-110N-16, USAF Nuclear Certified Equipment and Software
TO 1-1-3, Inspection and Repair of Aircraft Integral Tanks and Fuel Cells
TO 1-1-8, Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft
TO 1-1-300, Acceptance/Functional Check Flight and Maintenance OPR Checks
TO 1-1-691, Aircraft Weapons Systems Cleaning and Corrosion Control
TO 1-1A-15, General Maintenance Instructions For Support Equipment
TO 1-1B-50, Basic Technical Order for USAF Aircraft Weight and Balance
TO 1-1H-39, Aircraft Battle Damage Repair General Technical Manual
TO 4W-1-61, Maintenance Instruction - All Types Aircraft Wheels
TO 11A-1-33, Handling and Maintenance of Explosive Loaded Aircraft
TO 11C15-1-3, Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents
TO 11D1-3-8-1, Portable Power Driven Decontamination Apparatus
TO 31R2-1-251, General Instructions - Transmission of False Distress Signals on Emergency Frequencies
TO 32-1-2, Use of Hand Tools (International Business Mechanical)

TO 32-1-101, Use and Care of Hand Tools and Measuring Tools
 TO 33B1-1, Nondestructive Inspection Methods
 TO 33K-1-100-CD-1, TMDE Calibration Notes Maintenance Data Collection Codes CAL
 Measurement Summaries, Calibration Procedure, Calibration Interval, and Work Unit Code
 Reference Manual
 TO 33K-1-100, Technical Manual TMDE Calibration Interval Technical Order and Work Unit
 Code Reference Guide.
 TO 34-1-3, Inspection and Maintenance of Machinery and Shop Equipment
 TO 34W4-1-5, Operator Manual-Welding Theory and Application
 TO 34Y1-1-171, Installation, Operation, Maintenance and Inspection of Air Compressors
 TO 35-1-3, Corrosion Prevention, Painting and Marking USAF Equipment
 TO 35-1-4, Processing and Inspection of Support Equipment for Storage and Shipment
 TO 35-1-24, General Instruction-AF Repair/Replacement for Selected San Antonio ALC
 Managed Support Equipment (SE)
 TO 35-1-25, Economic Repair Criteria for Support Equipment (SE)
 TO 35-1-26, General Instruction-AF Repair/Replacement for Selected SM/ALC Managed
 Support Equipment (SE)
 TO 36-1-58, General Requirement For Repair, Maintenance and Testing of Lifting Devices
 TO 36-1-191, Technical and Managerial Reference for Motor Vehicle Maintenance
 TO 38-1-23, Inspection and Installation of Spark Arrestors and Exhaust Purifiers On Non-
 aircraft
 TO 4T-1-3, Tires and Tubes
 TO 42A-1-1, Safety, Fire Precaution, and Health Promotion Aspects of Painting, Doping and
 Paint Removal
 TO 42B-5-1-2, Gas Cylinder (Storage Type) Use, Handling and Maintenance
 TO 44B-1-15, General Instructions - Jet Engine Anti-friction Bearing Handling, Removal,
 Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities

Table A7 Air Force Computer Service Manuals

AFCSM 21-303, PAMS
 AFCSM 21-556, Software Center Operator Manual
 AFCSM 21-558, Comprehensive Engine Management System
 AFCSM 21-561, Maintenance Event Subsystem
 AFCSM 21-563, Job Data Documentation
 AFCSM 21-564, Status and Inventory
 AFCSM 21-565, Operational Events Subsystem
 AFCSM 21-566, Inspection and Time Change
 AFCSM 21-568, Time Compliance Technical Order Subsystem
 AFCSM 21-570, Training Management
 AFCSM 21-573, Automated Scheduling Module
 AFCSM 21-574, Automated Debriefing
 AFCSM 21-575, Job Control, Automated Maintenance Operation Control Center
 AFCSM 21-576, Generic Configuration Status Accounting System (GCSAS)
 AFCSM 21-578, Product Quality Deficiency Reporting System
 AFCSM 21-579, Maintenance and Supply interface
 AFCSM 25-524, REMIS

Table A8 Abbreviations and Acronyms

2LM	Two Level Maintenance
A/R	Aerospace Repair
AEF	Aerospace Expeditionary Force
AETC	Air Education and Training Command
AAD	Average Absolute Deviation
ABDR	Aircraft Battle Damage Repair
AC	Aircraft Commander
ACC	Air Combat Command
ACE	Allied Command Europe
ACN	Authorization Change Notice
ACM	Aircraft Configuration Management
ACMI	Air Combat Maneuvering Instrumentation
ACO	Administrative Contracting Officer
ACPINS	Automated Computer Program Identification Number System
ACR	Authorization Change Requests
ACS	Aircraft Cross-Servicing / Agile Combat Support
ACTS	Automated Component Tracking System
ADCC	Assistant Dedicated Crew Chief
ADF	Automatic Direction Finder
ADN	Aircraft Directive Numbers
ADP	Automatic Data Processing
ADPE	Automatic Data Processing Equipment
ADR	Aircraft Document Review
ADR	Ammunition Disposition Report
ADS	Automated Data System
ADVON	Advanced Echelon
AFCS	Automatic Flight Control System
AFCSM	Air Force Computer Security Manual
AFE	Alert Force Evaluation
AFEMS	Air Force Equipment Management System
AFETS	Air Force Engineering and Technical Service
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFMC	Air Force Materiel Command
AFNCC	Air Force Network Control Center
AFOSH	Air Force Occupational Safety and Health
AFPC	Air Force Personnel Center
AFRC	Air Force Reserve Command
AFREP	Air Force Repair and Enhancement Program
AFSC	Air Force Specialty Code
AFSOC	Air Force Special Operations Command
AFTO	Air Force Technical Order
AGE	Aerospace Ground Equipment
AGETS	Automated Ground Engine Test Set

AGM—Air Surface Attack Guided Missile
AHE—Automated History Event
AHRS—Attitude Heading Reference System
AID—Accident, Incident, and Deficiencies
AIG—Address Indicating Group
AIMS—Air Intercept Missile System
ALA—Ammunition Loading Assemblies
ALC—Air Logistics Center
ALCS—Airborne Launch Control System
ALI—Awaiting Laboratory Input
ALS—Ammunition Loading System
AMA—Acceleration Monitor Assemblies
AMC—Air Mobility Command
AME—Alternate Mission Equipment
AMF—Aircraft Maintenance Flight
AMOG—Air Mobility Operations Group
AMQP—Aircraft Maintenance Qualification Program
AMS—Air Mobility Squadron
AMSG—Air Mobility Support Group
AMSS—Air Mobility Support Squadron
AMXS—Aircraft Maintenance Squadron
ANG—Air National Guard
AOR—Area of Responsibility
APA—Assessor Proficiency Assessment
APG—Airplane General
APP—Auxiliary Power Plant
APU—Auxiliary Power Unit
AQL—Acceptable Quality Level
ARC—Air Reserve Component
ART—Air Reserve Technician
AS—Allowance Standard
ASAP—As Soon As Possible
ASE—Avionics Support Equipment
ASIP—Aircraft Structural Integrity Program
ASIMIS—Aircraft Structural Integrity Management Information System
ASM—Aircraft Structural Maintenance
ASM—Automated Scheduling Module
ASS—Aircraft Support Section
AT—Air Traffic
ATC—Air Traffic Control
ATD—Aircrew Training Devices
ATF—After-the-Fact
ATM—Air Turbine Motor
ATO—Air Tasking Order
ATOMS—Automated Technical Order Management System
ATSO—Ability to Survive and Operate

AUR—Accomplishment Utilization Report
AUR—All-Up-Round
AURC—All-Up-Round Container
AVD O—Aerospace Vehicle Distribution Office
AVS—Aerospace Vehicle Status Report
AVT R—Airborne Videotape Recorder
AWBS—Automated Weight and Balance System
AWI—Awaiting Installation
AWM—Awaiting Maintenance
AWP—Awaiting Parts
BAI—Backup Aircraft Inventory
BCS—Bench Check Serviceable
BFD—Battery Firing Device
BFE—Basic Fighting Element
BITE—Built-in Test Equipment
BLIS—Base Level Inquiry System
BLSS—Base Level Supply System or Base Level Self Sufficiency
BNCC—Base Network Control Center
BPO—Basic Post-flight
BRA—Bomb Rack Assembly
BRAAT—Base Recovery After Attack
BRU—Bomb Rack Unit
BSL—Basic Systems Listing
BSP—Base Support Plan
BSSU—Bench Stock Support Unit
C2IPS—Command and Control Information Processing System
C4—Command, Control, Communications, and Computers
CA—Cannibalization Authority or Combat Support Coded
CAA—Career Assistance Advisor
CA/CRL—Custodian Authorization/Custody Receipt Listing
CAD—Computer Aided Design
CAD/PAD—Cartridge/Propellant Activated Device
CAF—Combat Air Forces
CAFSC—Control Air Force Specialty Code
CAMS—Core Automated Maintenance System
CANN—Cannibalization
CAPCODE—Capability/Reliability Code
CAS-B—Combat Ammunition System-Base
CASS—Consolidated Aircraft Support System
CAST—Combat Armament Support Team and/or Command Aircraft Systems Training
CATM—Captive Air Training Munition
CBM—Carriage Conventional Bomb Module
CBT—Computer-Based Training
CBU—Cluster Bomb Unit
CC—Commander or Combat Coded
CCB—Configuration Control Board

CCD—Course Control Document
CCI—Controlled Cryptographic Item
CCMS—Compass Call Mission Simulator
CCR—Circuit Card Repair
CCY—Calculated Cycles
CD—Command Disable
CDB—Central Data Base
CDC—Career Development Course
CDDAR—Crashed, Damaged, or Disabled Aircraft Repair
CDDS—CITS Deployable Diagnostics System
CDS—Command Disablement System
CE—Civil Engineer or Communications Electronics
CEMS—Comprehensive Engine Management System
CERI—Combat Effectiveness Readiness Inspection
CETS—Contractor Engineering and Technical Services
CFL—Competent Familiarity Loading
CFETP—Career Field Education and Training Plan
CFRS—Computerized Fault Reporting System
CFS—Contractor Field Services
CFT—Conformal Fuel Tank
CFT—Contract Field Team
CGP—Central Ground Processors
CGT—Consolidated Ground Terminal
CHPMSK—Centralized High Priority Mission Support Kit
CIC—Controlled Item Code
CIP—Control Indicator Programmer
CIRF—Centralized Intermediate Repair Facility
CITS—Central Integrated Test System
CL—Checklist
CLS—Contract Logistics Supports
CLSS—Combat Logistics Support Squadron
CM—Certified Mechanic or Configuration Management
CMIS—Close-loop Maintenance Information System
CMS—Calibration and Measurement Summary and/or Computer Maintenance Section
CMS—Component Maintenance Squadron
CMT—Certified Master Technician
CND—Cannot Duplicate
CO—Contracting Officer
COB—Co-located Operating Base
COMAFFOR—Commander of Air Force Forces
COMBS—Contractor Operated and Maintained Base Supply
COMPES—Contingency Operation Mobility Planning and Execution System
COMSEC—Communications Security
CONUS—Continental United States
CONOPS—Concept of Operations
CORE—Combat Oriented Repair Evaluation

CORI—Combat Oriented Repair Initiative
COS—Chief of Supply
COSO—Combat Oriented Supply Organization
COT—Current Operating Time
CPIN—Computer Program Identification Numbering
CPR—Cardio-Pulmonary Resuscitation
CPSE—Crew and Passenger Support Equipment
CPT—Cockpit Trainer
CR—Component Repair
CRB—Configuration Review Board
CR&R—Calibration, Repair, and Return
CSAS—Configuration Status Accounting System
CSB—Centralized Support Base
CSC—Central Security Control
CSE—Customer Service Element
CSF—Combat Systems Flight
CSM—Cross-Servicing Manager
CSO—Concurrent Servicing Operation
CSR—Course Status Report
CSRD—Computer System Requirement Document
CSRL—Code Selected Reconciliation Listing or Conventional Stores Rotary Launcher
CSS—Concurrent Servicing Supervisor
CSSM—Combat Supply Support for Maintenance
CST—Combat Support Teams
CST—Combined System Test
CT—Certified Technician
CTK—Composite Tool Kit
CTP—Certified Technician Program
CTR—Consolidated Training Request
CUT—Cross Utilization Training
CV—Vice Commander
CVR—Cockpit Voice Recorder
CVTS—Cockpit Television Sensor
CW—Chemical Warfare or Continuous Wave
CYC—Cycles
DAD—Designated Alert Detachment
DAFSC—Duty Air Force Specialty Code
DAIS—Digital Airborne Intercommunications Switching Set
DAR—Data Automation Requirement
DASS—Decentralized Supply Support
DBM—Data Base Manager
DCC—Dedicated Crew Chief
DCC—Deployment Control Center
DCMA—Defense Contract Management Agency
DDN—Defense Data Network
DDR—Daily Demand Rate

DDS—Deferred Discrepancy Summary
DDTS—Data Display Training Set
DECC—Defense Enterprise Computer Center
DEFCON—Defense Readiness Condition
DFDR—Digital Flight Data Recorder
DFT—Depot Field Team
DIFM—Due-in From Maintenance
DIREP—Difficulty Report
DIT—Data Integrity Team
DLC—Distance Learning Center
DLH—Delete History
DLIR—Downward-Looking Infrared Radar
DLM—Depot Level Maintenance
DML—Deferred Maintenance List
DOB—Dispersed Operating Capability
DOC—Designed Operational Capability
DOD—Department of Defense
DOE—Department of Energy
DOI—Date of Installation
DOL—Dispersed Operating Location
DOM—Date of Manufacture
DOP—Dropped Object Prevention
DOR—Due-out Release
DP—Disposal Procedure
DPC—Data Processing Center
DPU—Demand Processing Unit
DR—Deficiency Report
DRMO—Defense Reutilization and Marketing Office
DS—Defensive Systems
DSE—Dedicated Support Element
DSN—Defense Switching Network
DSV—Detected Safety Violations
DTRA—Defense Threat Reduction Agency
DUO—Due-Out
DVR—Document Validation Report
E&E—Electro-Environmental
EA—Electronic Attachment
EAID—Equipment Authorization Inventory Data
EBU—Emergency Build-Up
ECM—Electronic Countermeasures
ECMP—Engine Conditioning Monitoring Program
ECMS—Engine Configuration Management System
ECP—Engineering Change Proposal
ECS—Environmental Control System
ECU—Environmental Control Unit
EDD—Estimated Delivery Date

EDM—Emergency Destruction of Munitions
EDSC—Engineering Data Service Center
EHR—Event History Recorder
EID—Event Identification Description or Equipment Identification Designator
EIP—Equipment Inoperative for Parts
ELT—Emergency Location Transmitter
EM—Engine Management
EMF—Equipment Maintenance Flight
EMR—Electromagnetic Radiation
NMCB—Engine Not Mission Capable-Both
ENMCM—Engine Not Mission Capable-Maintenance
ENMCS—Engine Not Mission Capable-Supply
EOD—Explosive Ordnance Disposal
EODE—Explosive Ordnance Disposal Evaluator
EOR—End of Runway
EOT—Engine Operating Time
EPA—Environmental Protection Agency
EPE—Evaluator Proficiency Evaluation
EPT—Empty Pylon Test
ER—Exceptional Release
ERRC—Expendability, Recoverability, Reparability Code
ES—Equipment Specialist
ESE—Engine Support Equipment
ESI—Equipment Status Inquiry
ESOH—Environmental Safety and Occupational Health
ESS—Electrical Standards Set
ESTS—Electronic System Test Set
ETTAS—Engine Test Trim Automated System
ETA—Expected Time in Accounting
ETIC—Expected Time in Commission
ETS—Engineering and Technical Service
ET&D—Engine Trending and Diagnostics
EVL—Event List
EVS—Electro-Optical Viewing System
EW—Electronic Warfare
EWIR—Electronic Warfare Integrated Reprogramming
EWO—Emergency War order
EWS—Electronic Warfare System
EXPRESS—Execution and Prioritization of Repair Support System
FAA—Federal Aviation Administration
FAC—Functional Area Chief
FAD—Force Activity Designator
FADM—Functional Area Documentation Manager
FAM—Functional Area Manager
FAR—Federal Acquisition Regulation
FCAA—Flight Control Actuator Assembly

FCC—Flying Crew Chief
FCF—Functional Check Flight
FCIF—Flight Crew Information File
FDO—Fee Determining Official
FDR—Flight Data Recorder
FDSE—Flightline Dedicated Support Element
FECP—Field Engineering Change Proposal
FIS—Fighter Interceptor Squadron
FIT—Facility for Interoperability Testing
FK—Air Force Stock Record Account Number Prefix (munitions)
FLIR—Forward-Looking Infrared Radar
FMC—Fully Mission Capable
FMI—Functional Management Inspection
FMIS—Force Management Information System
FO—Foreign Object
FOB—Forward Operating Base
FOD—Foreign Object Damage
FOL—Forward Operation Location
FOM—Facilitate Other Maintenance
FSAS—Fuel Savings Advisory System
FSC—Flight Service Center
FSE—Field Service Evaluation
FSL—Full Systems Listing
FTD—Field Training Detachment
FY—Fiscal Year
G081—CAMS for Mobility
GA—Graduate Assessment
GBL—Government Bill of Lading
GBU—Guided Bomb Unit
GC—Guidance Control
GCCS—Global Command and Control System
GCSAS—Generic Configuration Status Accounting Subsystem
GDSS—Global Decision Support System
GITA—Ground Instructional Trainer Aircraft
GN—Gaseous Nitrogen
GOX—Gaseous Oxygen
GP—Group
GP/CC—Group Commander
GPC—Government-wide Purchase Card
GPS—Global Positioning System
GPWS—Ground Proximity Warning System
GS—General Schedule
GSA—General Services Administration
GSAS—Generation Sequence Action Schedule
GTC—Gas Turbine Compressor
HAS—Hardened Aircraft Shelters

HAZCOM—Hazard Communication
HAZMAT—Hazardous Material
HEI—High Explosive Incendiary
HF—High Frequency
HMXS—Helicopter Maintenance Squadron
HNS—Host Nation Support
HPO—Hourly Post-flight
HQ—Headquarters
HSAB—Heavy Stores Adapter Beam
HSC—Home Station Check
HYT—High Year of Tenure
I&SG—Interchangeable and Substitute Group
IAW—In Accordance With
IBL—Inspection Baseline
ICO—Invoice Control Officer
IDAS—Intrusion Detection Alarm System
IDEA—Innovation Development through Employee Awareness
I-Deck—Initialization Deck
IED—Improvised Explosive Device
IEU—Individual Equipment
IFE—In-flight Emergency
IFF—Identification Friend or Foe
IG—Inspector General
ILM—Intermediate Level Maintenance
IM—Item Manager
IMA—Individual Mobilization Augmentation
IMC—Interim Message Change
IMDS—Integrated Maintenance Data System
IMF—Integrated Maintenance Facility
IMIS—Integrated Maintenance Information System
IMMU—Independent Munitions Maintenance Unit
INS---Inertial Navigation System
INSP—Inspection
INW—In Work
IP—Instructor Pilot
IPA—In-Process Assessment
INW—In-Work
IPA—In-Process Assessment
IPB—Illustrated parts breakdown
IPI—In-Process Inspection
IPL—Immediately Prior to Launch
IRADS—Infrared Acquisitions/Designation System
IRC—Inspection Record Card
IREP—Intermediate Repair Enhancement Program
IRRI—Immediate Response Readiness Inspection
IRSP—In-place Readiness Spares Packages

ISD—Instructional System Development
ISO—Isochronal Inspection
ISSL—Initial Spares Support List
ITAL—Initial Task Assignment List
ITDS—Integrated Technical Data System
ITO—Initial Tasking Order
ITOF CN—Interim Technical Order Field Notification
I&E—Inspection and Evaluation
JA/ATT—Joint Airborne/Air Transportability Training
JCAL S—Joint Computer-Aided Acquisition and Logistics Support
JCN—Job Control Number
JDD—Job Data Documentation
JDMP—Joint Depot Maintenance Program
JEIM—Jet Intermediate Maintenance
JETCC—Jet Engine Test Cell/Stand Calibrator
JFACC—Joint Forces Air Component Commander
JML—Job Standard Master Listing
JOPE S—Joint Operations Planning and Execution System
JQS—Job Qualification Standard
JRTC—Joint Readiness Training Center
JST—Job Standard
JUMPS—Joint Uniform Military Pay System
KTL—Key Task List
LAN—Local Area Network
LANTIRN—Low Altitude Navigation and Targeting Infrared for Night
LCF—Low-Cycle Fatigue
LCL—Local Checklists
LGR—Logistics Readiness Division
LIL—Location Inventory List
LIMFACS—Limiting Factors
LJG—Local Job Guides
LLC—Limited Life Component
LLT—Loaded Launcher Test
LM—Limited-use Munition
LME—Locally Manufactured Equipment
LMR—Land Mobile Radio
LO—Low Observable
LOGMOD—Logistics Module
LOGNET—Logistics Network
LOP—Local Overprint
LORAN—Long Range Navigation
LORI—Limited Operational Readiness Inspection
LOX—Liquid Oxygen
LPS—Local Page Supplements
LPT—Loaded Pylon Test
LRS—Logistics Readiness Squadron

LRU—Line Replaceable Unit
LSC—Load Standardization Crew
LSM—Logistics Supply Manager
LSP—Logistics Support Plan
LWC—Local Work cards
M&I—Maintenance and Inspection
MACC—Maintenance Aircraft Coordination Center
MADAR—Malfunction Detection, Analysis, and Recording System
MAIS—Maintenance Analysis and Information System
MAJCOM—Major Command
MASO—Munitions Accountable System Officer
MASS—Mission Capable (MICAP) Asset Sourcing System
MC—Mission Capable
MCC—Mission Capability Code
MCGS—Microwave Command Guidance System
MCL—Master Change Log
MDC—Maintenance Data Collection
MDEU—Mission Data Entry Unit
MDF—Mission Data File
MDPS—Mission Data Preparation System
MDR—Materiel Deficiency Report
MDS—Mission, Design, and Series
MDSA—Maintenance Data Systems Analysis
MEGP—Mission Essential Ground Personnel
MEL—Minimum Essential Level
MEO—Most Efficient Organization
MER—Multiple Ejection Rack
MESL—Mission Essential Subsystems List
MET—Management Engineering Team
MFG—Munitions Family Group
MHE—Materiel Handling Equipment
MI—Management Inspection
MICAP—Mission Capable
MISCAP—Mission Capability
MIL—Master Inventory List
MILAP—Maintenance Information Logically Analyzed and Presented
MILSPEC—Military Specification
MIS—Maintenance Information Systems
MMHE—Munitions Materiel Handling Equipment
MMICS—Maintenance Management Information and Control System
MMR—Maintenance Manpower Requests
MOA—Memorandum of Agreement
MOB—Main Operating Base
MOC—Maintenance Operations Center
MOI—Maintenance Operating Instruction
MOL—Main Operating Location

MOU—Munitions Operation Unit
MOF—Maintenance Operations Flight
MPC—Maintenance Priority Code or Mission Planning Cell
MPF—Military Personnel Flight
MPL—Maintenance Personnel Listing
MPR—Maintenance Personnel Roster (listing)
MPRL—Minimum Proficiency Requirement Loading
MQT—Maintenance Qualification Training
MRA—Minimum Reserve Authorization
MRS—Mission Route Support
MRATA—Missile Radar Altimeter Test Assembly
MRL—Materiel Requirements List
MRP—Maintenance Repair Priorities
MRSP—Mission Readiness Spares Package
MRT—Maintenance Recovery Team and/or Mission Ready Technician
MS—Maintenance Supervisor (Officer Duties)
MSA—Munitions Storage Area
MSAD—Mechanical Safe-Arm Device
MSB—Main Support Base
MSC—Modernization Systems Center
MSD—Material Support Division
MSE—Munition Support Equipment
MSIM—Mission Simulator
MSK—Mission Support Kit
MSL—Maintenance Supply Liaison
MSPE—Maintenance Safety and Protection Equipment
MST—Mission Support Team
MSU—Maintenance and Storage Unit
MT—Maintenance
MTBF—Mean Time Between Failure
MTBM—Mean Time Between Maintenance
MTD—Maintenance Training Device
MTE—Multiple Tracked Equipment
MTF—Maintenance Training Flight
MTP—Maintenance Training Plan
MTR—Military Travel Request
MTT—Mobile Training Team
MTW—Major Theater War
MUNS—Munitions Squadron
MXG—Maintenance Group
MXS—Maintenance Squadron
NAF—Numbered Air Force
NAS—National Aerospace Standard
NATO—North Atlantic Treaty Organization
NAVAIDS—Navigational Aids
NBC—Nuclear, Biological, Chemical

NDI—Non-destructive Inspection
N.E.W.—Net Explosive Weight
NHA—Next Higher Assembly
NIE—Normally Installed Equipment
NI&RT—Numerical Index and Requirement Table
NLT—Not Later Than
NMC—Not Mission Capable
NMCS—Not Mission Capable - Supply
NOCM—Nuclear Ordnance Commodity Management
NOTAM—Notice to Airmen
NPA—Non-Powered AGE
NRTS—Not Repairable This Station
NSN—National Stock Number
NSS—Noise Suppression System
O&M—Operations and Maintenance
OACSR—Operational Aircraft Cross-Servicing Requirement
OAP—Oil Analysis Program
OAS—Offensive Avionics System
OBTS—On-Board Test System
OCF—Operational Check Flight
OCM—On Condition Maintenance
OCONUS—Outside Continental U.S.
OCR—Office of Collateral Responsibility
OFP—Operations Flight Program
OG—Operations Group
OGP—OBTS Ground Processor
OI—Operating Instruction
OIC—Officer in Charge
OJT—On the Job Training
OL—Operating Location
OLO—Operations Liaison Officer
OPORD—Operations Order
OPR—Office of Primary Responsibility
OPTEMPO—Operations Tempo
ORI—Operational Readiness Inspection
ORM—Operational Risk Management
OSHA—Occupational Safety and Health Administration
OS—Operational Squadron
OSS—Operations Support Squadron
OSS&E—Operational Safety Suitability and Effectiveness
OT&E—Operational Test and Evaluation
OTI—One Time Inspection
OTS—Over-the-shoulder
OTU—Operating Time Update
OWC—Owning Workcenter
P-S—Permanent-Safety

P&A—Programs and Assessments
PAA—Primary Aircraft Authorized
PACAF—Pacific Air Forces
PACCS—Post Attack Command and Control System
PAL—Permissive Action Link
PAMS—PMEL Automated Management System
PAS—Protective Aircraft Shelter
PATEC—Portable Automatic Test Equipment Calibrator
PBR—Percent of Base Repair
PC—Personal Computer
PCA—Permanent Change of Assignment
PCO—Procuring Contracting Officer
PCS—Permanent Change of Station
PD—Program Document
PDM—Programmed Depot Maintenance
PDO—Publications Distribution Office
PE—Personnel Evaluations
PEC—Program Element Code
PERSCO—Personnel Support for Contingency Operations
PI—Product Improvement
PIF—Personal Information File
PIM—Product Improvement Manager
PIP—Product Improvement Program
PIWG—Product Improvement Working Group
PGM—Precision Guided Munitions
PM—Primary Munition or Preventive Maintenance
PMC—Partially Mission Capable
PMCS—Partially Mission Capable - Supply
PMCO—Project Monitor for Contracting Officer
PMEL—Precision Measurement Equipment Laboratory
PMI—Preventive Maintenance Inspection
PMO—Program Management Office
PNAF—Prime Nuclear Airlift Force
POC—Point of Contact
POI—Plans of Instruction
POL—Petroleum, Oil, and Lubricants
POM—Program Objective Memorandum
POS—Peacetime Operating Stock
PPE—Personnel Protective Equipment
PPR—Product Planning Requirements
PQDR—Product Quality Deficiency Report
PRAM—Productivity, Reliability, Availability and Maintainability
PRD—Pilot Reported Discrepancy
PRP—Personnel Reliability Program
PRT—Publications Requirement Table
PS&D—Plans, Scheduling, and Documentation

PSP—Primary Supply Point
PTDO—Prepare to Deploy Order
PTM—Production Team Maintenance
PTR—Pressure Test Record
PWC—Performing Workcenter
PWS—Performance Work Statement
PWTO—Paperwork Transaction Only
QA—Quality Assurance
QAA—Quality Assurance Assessment
QAP—Quality Assurance Program
QAR—Quality Assurance Representative
QASP—Quality Assurance Surveillance Plan
QAT—Quality Assessment Tracking
QC—Quality Control
QE—Quarterly Evaluation
QEC—Quick Engine Change
QIT—Quality Improvement Team
QLP—Query Language Processor
QMM—Quality Maintenance Metrics
QP--Quality Program
QPA—Quantity Per Assembly
QPE—Quality Process Evaluators
QRC—Quick Reaction Capability
QRL—Quick Reference List
QT—Qualification Training
QuAD - ANG Quality Assurance Database
QVA—Quality Verification Assessment
QVI—Quality Verification Inspection
QVR—Quality Verification Result
RACC—Reparable Asset Control Center
RAL—Routine Assessment List
RAM—Radar Absorbent Material
RAMPOD—Reliability, Availability, Maintainability for Pods and Integrated Systems
RAMTIP—Reliability and Maintainability Technology Insertion Program
RASCAL--Rapid assistance support for calibrations
RAT—Redeployment Assistance Team
RCM—Repair Cycle Monitor
RCS—Reports Control Symbol
RCSU—Repair Cycle Support Unit
RCT—Repair Cycle Time
RDCO—Refueling Documents Control Officer
RDD—Required Delivery Date
RDT&E—Research, Development, Test, and Evaluation
REMIS—Reliability and Maintainability Information System
RIC—Repair Initiative Conference
RIL—Routine Inspection List

RIW—Reliability Improvement Warranty
RJT—Reject List
RLP—Remote Line Printer
ROD—Report of Discrepancy
ROID—Report of Item Discrepancy
RPIE—Real Property Installed Equipment
RPC—Regional Processing Center
RPM—Revolutions Per Minute
RS—Reentry System
RSP—Render Safe Procedure
RSP—Readiness Spares Package
RSS—Regional Supply Squadron
RSU—Runway Supervisory Unit
RTC—Regional Training Center
RTHW—Radar Threat Warning
RTL—Routine Task List
RTS—Radar Test Set
RTOK—Re-Test O.K.
RV—Reentry Vehicle
RWR—Radar Warning Receiver
R&M—Reliability and Maintainability
R&R—Repair and Reclamation
SA—Special Assessment
SAP—Squadron Assessment Program
SART—Strategic Aircraft Reconstitution Team
SAS—Stability Augmentation System
SASS—Stability Augmentation Subsystem
SATE—Security Awareness Training and Education
SATCOM—Satellite Communication
SAV—Staff Assistance Visit
SBSS—Standard Base Supply System
SCL—Standard Conventional Load
SCR—Special Certification Roster
SDAP—Special Duty Assignment Pay
SE—Support Equipment
SEI—Special Experience Identifier
SF—Security Forces
SGA—Selective Generation Aircraft
SHAPE—Supreme Headquarters Allied Powers in Europe
SHD—Significant Historical Data
SHDR—Significant History Data Recorder
SI—Special Inspections
SIOP—Single Integrated Operational Plan
SIT—System Interface Test
SLC—Standardization Lead Crew

SLT—Simulated Laser Target
SM—Single Manager or Support Munitions
SME—Subject Matter Expert
SMR—Source of Maintenance and Recoverability
SN—Serial Number
SO—Single Observation
SOF—Supervisor of Flying
SORTS—Status of Resources and Training System
SOT—Status of Training
SOW—Statement of Work
SPD—Servicing/Pick-up/Delivery
SPD—System Program Director
SPO—System Program Office
SPRAM—Special Purpose Recoverables Authorized Maintenance
SQ—Squadron
SQ/CC—Squadron Commander
SQT—Special Qualification Training
SR—Service Report or Strategic Radar
SRA—Specialized Repair Activity
SRAN—Stock Record Account Number
SRD—Standard Reporting Designator
SRP—Selective Reenlistment Program
SRU—Shop Replaceable Unit
SSEA—System Safety Engineering Analysis
SSG—Standard Systems Group
SSM—System Support Manager
STAMP—Standard Air Munitions Package
SUPT—Maintenance Superintendent (Enlisted Duties)
SW—Special Weapons
SWIM—Special Weapons Information Management
SY—Sympathy
TA—Table of Allowances
TAC—Total Accumulated Cycles
TACAN—Tactical Air Navigation
TACC—Tanker/Airlift Control Center
TAL—Task Assignment List
TALCE—Tanker/Airlift Control Element
TBU—Tank Build-Up
TCAS—Traffic Collision Avoidance System
TCI—Time Change Item
TCS—TCTO Status Report
TCTO—Time Compliance Technical Order
TD—Training Detachment
TDAM—Trend Data Advisory Message
TDI—Time Distribution
TDV—Technical Data Violations

TE—Technical Engineer
TEC—Type Event Code
T/E/C—Trainer/Evaluator/Certifier
TEMS—Turbine Engine Management System
TEP—Technical Engineering Program
TER—Triple Ejection Rack
TF—Training Funded
TFCU—Transportable Field Calibration Unit
TIN—Turn In
TISL—Target Identification Set Laser
TMATS—Transmitter/Modulator Assembly Test Set
TMDE—Test Measurement and Diagnostic Equipment
TMO—Traffic Management Office
TMRS—Tactical Missile Reporting System
TMSM—Type Make Series Modification
TNB—Tail Number Bin
TNO—Theater Nuclear Option
TO—Technical Order
TOC—Technical Order Distribution Activity
TODCA—Technical Order Distribution Control Activity
TODO—Technical Order Distribution Office
TOFCN—Technical Order Field Change Notice
TOS—Time On Station
TOT—Task Oriented Training
TPFDD—Time Phased Force Deployment Document
TPR—Trained Personnel Requirement
TRAP—Tanks, Racks, Adapters, and Pylons
TRE—Transfer of Equipment
TRCO—Technical Representative of the Contracting Officer
TRIC—Transaction Identification Code
TRN—Turnaround Transaction
TRSS—Training Support Squadron
TRU—Tester Replaceable Unit
TSSE—Test Station Support Equipment
TSS—TCTO Status Summary
TTML—Test/Training Munitions List
TVI—Technical Validation Inspection
U&TW—Utilization and Training Workshop
UAV—Unmanned Aerial Vehicle
UCML—Unit Committed Munitions List
UCMS—Unit Capability Measurement System
UCR—Unsatisfactory Condition Reports
UDM—Unit Deployment Manager
UETM—Unit Education and Training Managers
UEM—Unit Engine Manager
UGT—Upgrade Training

UHF—Ultra High Frequency
UJC—Urgency Justification Code
ULN—Unit Line Number
UMD—Unit Manpower Document
UMMIPS—Uniform Material Movement and Issue Priority System
UND—Urgency of Need Designator
UPMR—Unit Personnel Management Roster
USAF—United States Air Force
USAFE—United States Air Force in Europe
UTA—Unit Training Assembly
UTC—Unit Type Code
UTE—Utilization Rate
UXO—Unexploded Ordnance
VGH—Velocity Gravity and Height
VHF—Very High Frequency
VOR—Voice Operated Recorder
VIRP—Variable Information Retrieval Program
VPMO—Vibration Program Management Office
VTT—Video Tele-Training
W&B—Weight and Balance
W&T—Wheel and Tire
W/B/T—Weapon Bay Fuel Tanks
WCDO—War Consumables Distribution Objective
WCE—Workcenter Event
WCS—Weapons Control System
WG—Wing or Wage Grade
WG/CC—Wing Commander
WG/CV—Vice Wing Commander
WL—Wage Leader
WLCMP—Weapons Load Crew Management Program
WLT—Weapons Load Training
WOG—Work Order Generator
WR—War Reserve
WRCS—Weapons Release Control System
WRM—War Reserve Materiel
WRMO—War Reserve Materiel Officer
WS—Weapons Standardization or Wage Supervisor
WSCM—Weapon System Compatible Munition
WSE—Weapon Standardization Evaluator
WSEP—Weapons System Evaluation Programs
WSLO—Weapon System Liaison Officer
WSLU—Weapon System Lead Unit
WTD—Weapons Training Detachment
WTQC—Weapons Task Qualification Crew
WTQM—Weapons Task Qualification Training Manager
WTS—Weapons Training Site

WWM—Wing Weapons Manager

WX—Weather

WUC—Work Unit Code

Table A9 Terms Explained

Aircraft Impoundment—Isolation of an aircraft due to an unknown malfunction or condition making it unsafe for flight.

Aircraft Maintenance Qualification Program (AMQP)—Conducts training in an environment that is not in competition with sortie production. Ensures personnel arrive at their workcenter with the necessary skills to be immediately productive.

Aircrew Training Device (ATD)—Weapons systems simulator or designated training aircraft.

Allowance Standard (AS)—Authorized document that identifies the amount and type of equipment for an organization.

Alternate Mission Equipment (AME)—Equipment identified to a higher end-item, not listed in the table of allowance. Normally, -21 equipment.

Awaiting Maintenance (AWM)—Designation for a deferred discrepancy on an aircraft awaiting maintenance.

Awaiting Parts (AWP)—Designation for a deferred discrepancy on an aircraft awaiting parts.

Bench Stocks—Stores of expendability, recoverability, reparability coded (ERRC) XB3 items kept on-hand in a workcenter to enhance maintenance productivity.

Cannibalization—Authorized removals of a specific assembly, subassembly, or part from one weapons system, system, support system, or equipment end-item for installation on another end-item to meet priority mission requirements with an obligation to replace the removed item.

Certified Load Crew Member—A load crew member trained and certified by position according to **Chapter 16**

Class I and Class II Aircraft—Classification categories used when calculating aircraft's weight and balance.

Code 1, Code 2, Code 3, Code 4, Code 5—Landing status codes used by aircrew to inform maintenance of their inbound aircraft's condition. A Code 1 aircraft has no additional discrepancies other than those it had when it last departed; a code 2 aircraft has minor discrepancies, but is capable of further mission assignments; a code 3 aircraft has major discrepancies in mission-essential equipment that may require repair or replacement prior to further mission tasking; a code 4 indicates suspected or known nuclear, biological, or chemical contamination; and a code 5 indicates battle damage. Codes 4 and 5 are entered into the MIS as code 8.

Commodity Time Compliance Technical Order—TCTO concerning a designated item, subsystem, or system that is not identified as a weapon or military system.

Composite Tool Kit (CTK)—A controlled area or container used to store tools or equipment and maintain order, positive control, and ease of inventory. CTKs are assembled as a kit and designed to provide quick, easy visual inventory and accountability of all tools and equipment. CTKs may be in the form of a toolbox, a shadow board, shelves, system of drawers (Stanley Vidmar, Lista, etc.), cabinets, or other similar areas or containers. The CTK contains tools and equipment necessary to accomplish maintenance tasks, troubleshooting, and repair.

Course Control Documents (CCD)—Set of documents that dictate how a course is taught. These documents include a course training standard, course chart, and a plan of instruction.

Crash Damaged or Disable Aircraft Recovery (CDDAR)—The ability to move damaged or disabled aircraft using specialized equipment

Debriefing—Program designed to ensure malfunctions identified by aircrews are properly reported and documented.

Decertification—The removal of certification status from a person for a specific task

Dedicated Crew Chief—DCCs are first-level supervisors in the flightline management structure who manage and supervise all maintenance on their aircraft, and are selected on the basis of initiative, management and leadership ability, and technical knowledge, regardless of AFSC.

Delayed or Deferred Discrepancies—Malfunctions or discrepancies not creating NMC or PMC status that are not immediately corrected.

Depot Level Maintenance—Maintenance consisting of those on- and off-equipment tasks performed using the highly specialized skills, sophisticated shop equipment, or special facilities of a supporting command; commercial activity; or inter service agency at a technology repair center, centralized repair facility, or, in some cases, at an operating location. Maintenance performed at a depot may also include organizational or intermediate level maintenance as negotiated between operating and supporting commands.

Dispatchable CTK—CTK issued out to perform a specific task or for use by a specific AFSC and is designed to be used outside the tool room or workcenter.

Equipment Custodian—Individual responsible for all in-use equipment at the organizational level whose duties include requisitioning, receiving, and controlling of all equipment assets.

Equipment Identification Designator (EID)—A number assigned to a piece of shop equipment, used to track status and accountability.

Equipment Items—Item authorized in the allowance standard within an organization.

Evaluated Load—A loading task that is assessed according to **Chapter 16**.

Flight Chief—NCO responsible to the maintenance officer or superintendent for management, supervision, and training of assigned personnel.

FK or FV —Prefix used to identify the munitions supply account. FV denotes units utilizing the Combat Ammunition System-Base (CAS-B) system and FK denotes units utilizing SBSS or manual records supply point within a munitions' operations unit for conventional munitions.

Immediately Prior to Launch (IPL)—Specific tasks accomplished immediately prior to launching an aircraft.

In-Process Inspection (IPI)—Inspection performed during the assembly or reassembly of systems, subsystems, or components with applicable technical orders.

Individual Tools and Equipment—Tools and equipment that are available for individual sign-out but stored in the tool room in storage bins, cabinets, shelves, etc., with every item having an assigned location (e.g. flashlights, ladders, etc.).

Intermediate-Level Maintenance—Maintenance consisting of those off-equipment tasks normally performed using the resources of the operating command at an operating location or at a centralized intermediate repair facility.

Lead Crews. —A load crew certified by the load standardization crew (LSC), which is assigned to WS to assist in conducting the weapons standardization program.

Loading Standardization Crew (LSC)—A load crew designated by the wing weapons manager and the WS superintendent to administer the weapons standardization program. LSC members have certification and decertification authority

Loading Task—The actions required by one crew member, in a designated position, to accomplish a munitions load

Local Commander—The group commander with responsibility for maintenance (as applicable to loading technical data).

Locked Out or Tag Out—Energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which or through which a lock can be affixed. Tag out devices, shall be substantial enough to prevent inadvertent or accidental removal.

Maintenance Training—Any proficiency, qualification, or certification tasking required by a technician to perform duties in their primary AFSC.

Master Inventory List (MIL)—Primary source document for inventory of CTKs. The MIL indicates the total number of items in each drawer or section of the tool kit. MIL may be automated.

Missed Carded Item – A carded item that is either not complied with or was improperly completed.

Mission Design Series (MDS)—Alpha and numeric characters denoting primary mission and model of a military weapons system.

Minimum Proficiency Requirement Loading (MPRL)—Recurring loading of munitions for which a person is certified to maintain certification and provide evaluation of load crew proficiency.

Munitions Decertification—Removal of the certification status of a person that precludes them from loading a specific type munitions or MFG.

Normally Installed Equipment (NIE)—Bomb racks, launchers, and pylons normally installed on an aircraft.

No-Lone Zone—Area where the two-man concept must be enforced because it contains nuclear weapons, nuclear weapons systems, or certified critical components.

Non-Release—System malfunction in which a weapon does not release from the delivery system.

Off-Equipment Maintenance—Maintenance tasks that are not or cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

On-Equipment Maintenance—Maintenance tasks that are or can be effectively performed on or at the weapon system or end-item of equipment.

Operating Stock—The bits and pieces needed to support a maintenance workcenter, that does not meet the criteria of bench stock. It includes reusable items such as dust covers, hydraulic line covers, caps, items leftover from work orders, TCTOs, and items deleted from bench stock.

Operational Readiness Inspection (ORI)—Inspection that measures a unit's war fighting readiness.

Organizational Level Maintenance—Maintenance consisting of those on-equipment tasks normally performed using the resources of an operating command at an operating location.

Permissive Action Link (PAL)—Device included in or attached to a nuclear weapons system to preclude arming and launching until insertion of a prescribed discrete code or combination.

Personnel Protective Equipment (PPE)—Equipment required to do a job or task in a safe manner.

Preload—A complete munition and suspension equipment package ready for loading

Production Supervisor—Senior NCO responsible for squadron maintenance production. Directs the maintenance repair effort.

Programmed Depot Maintenance (PDM)—Inspection requiring skills, equipment, or facilities not normally possessed by operating locations.

Quality Assurance QA)—Individual who monitors a contractor on a daily basis and who is involved in every aspect of a contract to ensure the contractor is in compliance with that contract.

Quarterly Evaluation (QE)—Recurring calendar task evaluations the LSC performs on each weapons load crewmember using one of the unit's primary munitions. QE is used to verify effectiveness of training/task assignments lists (TAL), identify trends and monitor the lead crew(s) in the performance of their duties.

Queen Bee—A facility that performs engine repair for a specified region.

Quick Reference List (QRL)—Listing of fast moving, high use items required for primary mission aircraft. The basic purpose of the QRL is to provide maintenance personnel with a speedy way to place a demand on the supply system.

Rag—A remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) used in general industrial, shop, and flightline operations.

Repair Cycle Asset—Any recoverable item with an expendability, recoverability, reparability code (ERRC) category of XD or XF.

Recurring Discrepancy—A recurring discrepancy is one that occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

Repeat Discrepancy—One which occurs on the next sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

Shop CTK—Tool kits (not dispatched) used by workcenter personnel during a shift, provided a single person is responsible for the tool kit.

Shop Stock—Includes items such as sheet metal, electrical wire, fabric, and metal stock, used and stored within a maintenance workcenter to facilitate maintenance.

Single Integrated Operational Plan (SIOP)—Operational plan for using special weapons.

Special Certification Roster (SCR)—Management tool that provides supervisors a listing of personnel authorized to perform, evaluate, and inspect critical work.

Special Purpose CTK—Small individually issued tool kits that, because of the nature of contents or type of container, could preclude shadowing or silhouetting (e.g., launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits, etc).

Subcrew—Two or more certified and/or qualified personnel who may perform specific tasks

Supply Point—Forward warehouse located within or near the maintenance workcenter.

Tail Number Bins (TNB)—Locations established and controlled to store issued parts awaiting installation and parts removed to ““facilitate other maintenance”” (FOM). Holding bins are set up by tail number, serial number, or identification number.

Task Assignment List (TAL)—Functional grouping of procedural steps from applicable -33 series TOs, by crew position, to be accomplished in sequence by each crew member during an operation.

Technical Administrative Function—Function responsible for ordering and posting instructions, processing all orders, enlisted performance ratings, and general administrative tasks for the section.

Technical Order Distribution Office (TODO)—Function required to maintain records on TOs received and distributed.

Time Compliance Technical Order (TCTO)—Authorized method of directing and providing instructions for modifying equipment, and performing or initially establishing one-time inspections.

Tool Storage Facility/Tool Room—A controlled area within a workcenter designated for storage and issue of tools and equipment.

Unit Committed Munitions List (UCML)—List of primary, support, and limited-use munitions necessary to meet unit operational/training requirements.

Unmanned Aerial Vehicle (UAV)—An unmanned aircraft that is either remotely piloted (e.g. Predator) or programmed (e.g. Global Hawk).

Urgency Justification Code (UJC)—Two-digit code used to reflect the impact and type of need. The urgency of need designator (UND) fills the first position of the UJC. Use of UND 1, A and J is restricted and is verified by designated personnel.

Utilization Rate (UTE Rate)—Average number of sorties or hours flown per primary assigned aircraft per period. Usually time period is based on a monthly rate.

Weapons Certification—The act of verifying and documenting a person's ability to load a particular type of aircraft, and munition or MFG within established standards

Weapons Locally-Manufactured Equipment (LME)—All equipment that measures, tests, or verifies system, subsystem, component, or item integrity. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. It does not include simple adapter cables and plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs.

Weapons Standardization (WS)—Organization comprised of the wing weapons manager, a Superintendent, the Load Standardization Crew, an academic instructor, and lead crews.

Weapons Task Qualification—A munitions related task not requiring certification

Weight and Balance (W&B) Program—Program used in calculating, verifying, updating, and computing weight and balance on a weapon system.

Attachment 2**SUPPLY REPORTS AND LISTINGS**

Repair Cycle Asset Management Listing (D23). This listing is used to monitor repair cycle assets and as a management product to monitor the stock position and repair cycle status of repairable (DIFM) assets. It may be produced in several sequences and is provided to the customer daily. Refer to AFMAN 23-110.

Repairable Support Division (RSD) Due In From Maintenance (DIFM) Report. Provides senior managers, flight OIC, and flight chiefs information on assets remaining in the repair cycle over a user defined number of days (e.g. 10 days) that are tying up large amounts unit O&M funds (e.g. over \$10,000). This listing allows management to spot check the health of the repair cycle under the RSD concept and is available on request. Use this list to avoid penalty charges for DIFM items in the repair cycle greater than 60 days.

AWP Validation Listing (D19). Provides AWP due-outs and corresponding due-in and status details. This information helps determine the status of AWP end items and their corresponding bits and pieces and identifies cross-cannibalization candidates. It is a daily listing and is provided to all workcenters involved with AWP management.

MICAP Status Report (R49). This report provides the current status of all active MICAP requirements and provides the data in clear text. Use this product to validate serial numbers of parts required for MICAP end items. In units supported by a LRS using the MICAP Asset Sourcing System (MASS), the E-40 may be used in lieu of the R49.

Priority Monitor Report (D18). Use this report to monitor due-outs and their corresponding status. It is provided to organizations having due-outs at a locally determined frequency (i.e. daily for UND A, weekly for UND B).

Due-out Validation Listing (M30). Provide the user a list of all outstanding due-outs for their organization as reflected in the supply system. Ensure all due-outs are valid and still required. If changes are required, annotate the listing and return a copy to LRS. The listing is provided monthly.

Daily Document Register (D04). The D04 is used to monitor and validate supply transactions, which have occurred against a unit's supply account. Review daily for all charges, credits, and other transactions (ISUs, TINs, DORs, etc.) affecting your account.

Organizational Bench Stock Listing (S04). This is a listing of all items and quantities authorized on the workcenter bench stock. The listing is provided semiannually or as requested.

Bench Stock Review Listing (M04). Listing of recommended additions, changes, and deletions to organizational bench stocks based on consumption patterns. Do not automatically make additions/deletions based on this listing but rather on expected future demands. The M04 is provided monthly.

Repair Cycle Data List (Q04). Provides data applicable to each repair cycle item. Data provided includes history of past repair, NRTS, condemn actions, percent of base repair and repair activity. The listing is provided quarterly.

Supply Point Listing (Q13). This listing provides all supply point details, with the quantity

authorized, on-hand, and due-out for each detail. It also identifies shortages, excesses and shelf-life items. Q13 is provided quarterly or as requested.

Special Level Review Listing (R35). Provides information on all items with adjusted stock levels.

Organization Effectiveness Report (M24). The M24 reflects the level of supply effectiveness in meeting unit requirements. Percentages of effectiveness in issue/support and bench stock support for the past month are provided. Potential support problems may be indicated by the percentage of support provided in each area. This is a monthly product.

Monthly TCTO Reconciliation Listing. This listing provides TCTO kit status and is used to identify or reconcile differences between supply computer records and maintenance TCTO documents. Refer to AFMAN 23-110. Use monthly to perform this reconciliation.

TCTO Status Report (TCS). The TCS is a CAMS background product that identifies serial numbers, TCTO status codes, and kit, part, and tool requirements for equipment requiring modification, as well as a summary of affected equipment by TCTO status codes.

Document Validation Report (DVR). Used to validate parts request records by end item serial number (e.g. when performing 14 day records checks).

Event List (EVL). This is an on-line CAMS unique inquiry that provides supply document numbers, aircraft discrepancies and equipment ID by event ID.

MICAP Record Retrieval/Update (1MM). An on-line SBSS inquiry that lists information on current MICAP conditions by equipment ID.

MICAP (NMCS/PMCS) Supply Data Inquiry (NSD). An on-line CAMS inquiry that lists MICAP information by equipment ID.

Serial Number Record Inquiry. This on-line SBSS inquiry provides all due-out requirements (MICAPs, deferred discrepancies, etc.) for an equipment ID.

Attachment 3**Maintenance Recovery Team (MRT) Tasking Checklists.**

A3.1. The MRT POC will:

A3.1.1. Record the following:

A3.1.1.1. Aircraft MDS and tail number.

A3.1.1.2. Location.

A3.1.1.3. Point of contact (POC) and phone number.

A3.1.1.4. All discrepancies requiring support.

A3.1.1.5. Type of and desired skill level of needed technician.

A3.1.1.6. Parts requirements.

A3.1.1.7. Equipment requirements (including tools, testers, etc.)

A3.1.1.8. Mode of transportation and projected date/time of departure. Evaluate capabilities and determine the best mode of transportation (military airlift, commercial, or government vehicle).

A3.1.1.9. Passport/Visa/Immunization requirements for personnel.

A3.1.2. Contact the applicable maintenance supervision to review requirements and request support from the responsible units to assemble an MRT.

A3.1.3. Brief MRT personnel concerning their duties and responsibilities. Ensure the MRT chief understands the responsibilities. Emphasize the following:

A3.1.3.1. The MRT is required to call the home station MOC upon arrival to provide a phone number where they can be contacted.

A3.1.3.2. The MRT is responsible for their equipment and parts:

A3.1.3.2.1. Verify necessary parts are available. Open each container to ensure the right part(s) are in the box prior to departure.

A3.1.3.2.2. Check special tools, support and test equipment for serviceability prior to departure.

A3.1.4. Ensure TDY orders are generated for MRT. Consider the following authorizations and provide as required:

A3.1.4.1. Mission Route Support (MRS) or Mission Essential Ground Personnel (MEGP).

A3.1.4.1.1. MRS permits the bumping of cargo to allow space for the MRT and their equipment.

A3.1.4.1.2. MEGP allows MRT to bypass passenger terminals processing.

A3.1.4.2. Advance per diem.

A3.1.4.3. Commercial travel.

A3.1.4.4. Rental car.

A3.1.4.5. Variations:

A3.1.5. Direct the responsible shop to order the required parts and the applicable unit to select the required equipment items. If requirements are not known, make contact with the AC/flight engineer/crew chief to determine what items are required.

A3.1.5.1. Items too large or heavy to be carried will be coordinated with MXG/CC and processed by the responsible shop and given to the Traffic Management Office (TMO) for shipment.

A3.1.5.2. If parts can not be sourced locally, consider directing cannibalization.

A3.1.6. Commercial transportation of a MRT and equipment is, in many cases, the most expeditious method. Consider the following:

A3.1.6.1. Airline.

A3.1.6.2. Surface (bus, rail, and limousine).

A3.1.6.3. Air Express Small Package Service.

A3.1.7. Coordinate transportation requirements with TMO. Review the following:

A3.1.7.1. Destination, and priority.

A3.1.7.2. Selected mode of transportation and itinerary.

A3.1.7.3. Names for MRT personnel and nomenclature of equipment items and parts.

A3.1.7.4. Authorization for excess baggage allowance if necessary.

A3.1.7.5. Record TCNs, government bills of lading (GBL), and any applicable billing or shipment numbers. **NOTE:** Shipment of large or heavy items by commercial airline mandates prior coordination with airline personnel by MOC or the MRT. To maintain control of parts/equipment, they must be hand-carried or checked as baggage. If an item is not accepted as carry-on luggage or checked as baggage, purchase of an extra seat to accommodate it must be considered and is recommended. Advance coordination with the airline is the key to a successful movement without unnecessary delays.

A3.1.8. Maintain contact with the MRT or the unit responsible for the parts/equipment shipment to ensure that all resources arrive in time to make the scheduled departure.

MRT Chief Responsibilities

A3.2.1. Prior to Departure. The MRT chief will:

A3.2.1.1. Receive complete MRT briefing.

A3.2.1.2. Read and understand all MRT chief responsibilities.

A3.2.1.3. Ensure all personnel on the MRT are prepared and aware of their part in recovery actions.

A3.2.1.4. Ensure all equipment/parts/tool kits/technical orders are properly prepared for shipment.

A3.2.1.4.1. Verify necessary parts are available. Open containers to ensure the right part(s) are in the box.

A3.2.1.4.2. Check special tools, support and test equipment for serviceability.

A3.2.2. Upon Arrival. The MRT chief will:

A3.2.2.1. Contact home station MRT POC.

A3.2.2.2. Report to the mission commander and/or MOC.

A3.2.2.3. If possible, debrief air crew and make initial determination of discrepancy.

A3.2.2.4. Compute MRT duty day:

A3.2.2.4.1. Emphasize safety.

A3.2.2.4.2. Your initial duty day begins at the time you reported to work prior to MRT tasking. The total duty day (home station duty, travel, and recovery site duty) will not exceed 16 hours for any team member. Technicians will be afforded a minimum 8 hours uninterrupted rest. (Refer to Chapter 1)

A3.2.2.4.3. MRT work starts immediately upon arrival unless duty day has expired en route.

A3.2.2.4.4. Normal work/rest period at recovery site is 12 hours of work, followed by 12 hours of rest. The 12-hour work period may be extended with concurrence of the MXG/CC and or the group commander at the deployment site. Do not overwork your team and compromise safety. You are responsible for their care.

A3.2.2.4.5. If any questions arise consult the AC, group commander, senior maintenance representative, or MXG/CC.

A3.2.2.5. Report to home station MRT POC with the following information.

A3.2.2.5.1. Specific discrepancies.

A3.2.2.5.2. Estimated time in-commission (ETIC).

A3.2.2.5.3. Billeting room/phone (if applicable).

A3.2.2.5.4. Expiration time of MRT duty day.

A3.2.3. During recovery, report to the MRT POC to the following schedule:

A3.2.3.1. Upon initial assessment of actual discrepancy.

A3.2.3.2. If maintenance/supply status changes.

A3.2.3.3. As additional requirements become known (parts, equipment, expertise, etc.).

A3.2.3.4. At the end of shift or upon job completion.

A3.2.4. Upon completion of recovery. The MRT chief will:

A3.2.4.1. Assemble all parts/equipment/tools and prepare them for return shipment. Repairable assets brought with you or shipped to you from your home unit must be returned to your unit. Repairable assets issued at the recovery location will require turn-in at the recovery location. If in doubt about disposition, contact the home station MRT POC.

A3.2.5. Upon return to home station. The MRT chief will notify MRT POC of return.

MRT Chief Tasking Checklist

A3.3.1. Team Chief:

Name	Rank	AFSC
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A3.3.2. Other Personnel:

Name	Rank	AFSC
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A3.3.3. Recovery Location:

A3.3.4. Aircraft Type:

A3.3.5. Tail Number:

A3.3.6. Mission Number:

A3.3.7. Next Destination:

A3.3.8. Mission Commander:	Room/Phone:
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A3.3.9. Senior Rep/Maintenance Supervisor:

A3.3.10. Communications at Recovery Site:

A3.3.11. Specific Discrepancies:

A3.3.12. Equipment Required:	Item:	TCN:
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A3.3.13. Part(s) Required:	NSN:	TCN:
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Nomenclature:

Have required parts been bench checked before packing? Y / N / NA

A3.3.14. Tool Kits Required:	Kit Number:	TCN:
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A3.3.15. Support Acft Tail No:

A3.3.16. Mission Number:

A3.3.17. Show Time:

A3.3.18. Orders Prepared? Y / N

A3.3.19. ETD:

A3.3.20. Passport/Visa required? Y / N

A3.3.21. Required Clothing/Money/Shot Records/etc.:

A3.3.22. Military Travel Request (MTR) Prepared? Y / N